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## Experiences with Distemper Immunisation.*

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The work of Laidlaw and Dunkin in connection with the prevention of canine distemper is too well-known to members of this Division to need any remarks of mine to recall that they have definitely established that a virus exists which causes a specific disease in dogs popularly referred to as canine distemper, and that an active lasting immunity to the virus is established in dogs by the injection of suitable antigens. It has fallen to our lot to prepare these antigens (vaccine and virus) on a large scale and to issue them to the veterinary profession. We have had ample opportunity in our work to confirm the findings of Laidlaw and Dunkin, and we are in entire agreement with them that the virus of canine distemper, introduced into susceptible dogs, sets up a train of symptoms as described by them, and that the use of a potent vaccine, made according to the method described by Laidlaw and Dunkin, followed by the injection of an active virus, will produce a high degree of immunity to the virus. We have already communicated some of our experiences in the use of these prophylactics at a meeting of the South-Eastern Division in October last year. These experiences were based on our own observations on dogs used in the course of the preparation and testing of vaccine and virus at the laboratory, and on information received from veterinary surgeons who, up to that date, had used the materials prepared by us and had reported on the results. We stated then that " in about 99 per cent. of cases it would appear that the treatment had been marked with safety and efficacy," and in the same communication we ventured opinions as to the cause of some of the alleged failures.

Since the above paper was read we have been in touch with many more members of the veterinary profession who have used the prophylactics, and we have been able to carry out a considerable amount of laboratory work on material collected by veterinary surgeons from dogs which developed some form of disease following the use of vaccine and virus or which were clinically affected with distemper some considerable time after immunisation. In this paper I propose to refer briefly to what I may term the laboratory aspect of canine distemper and to follow with what will doubtless be of more interest to you, the field side of the subject.

LABORATORY ASPECT.

It is not yet a year since we started the making and testing of canine distemper prophylactic according to the method devised and described by Laidlaw and Dunkin. We have tried at all times to follow closely the details of the method and our best thanks are due to these workers for their kind advice and guidance which has made our task so much more pleasant and easy. You will realise that there is a considerable difference in the making and testing of large volumes of vaccine and virus for general issue than in batches for experimental purposes. It has been no uncommon thing for us to issue in as short a time as three weeks as much as Dr. Laidlaw and Major Dunkin issued in the two years during which they carried out their carefully-controlled field work before we were asked to undertake the work on the present large scale. We encountered many difficulties in the early days of our work—difficulties which, I am happy to say, are now nearly or in some aspects wholly overcome. The obtaining of sufficient supplies of dogs suitable for infecting with distemper virus for the subsequent provision of tissue for vaccine making, and the breeding of susceptible dogs for the testing and titrating of the vaccine and virus, was one of the problems we had to face. The procuring and, later, the breeding of ferrets for inoculation work, and to ensure a steady and constant supply of virus for testing and issue purposes also had to be dealt with. A staff of assistants had to be specially trained to manage infected animals in adjoining kennels, etc., and they, as well as ourselves, had to become familiar with the symptoms, etc., presented by dogs infected with virus, to learn at what stage in the disease the tissues would contain the greatest concentration of virus and be best obtained for vaccine making. These and many other problems had to be overcome—all of which took a certain amount of time, during which the veterinary profession and the dog-owning public were clamouring for supplies of efficient vaccine and virus as Laidlaw and Dunkin had provided. It was with a certain amout of pleasure, therefore, that we prepared our first potent batch of vaccine and received the information that Laidlaw and Dunkin had tested it for potency and found that it was up to their standard of antigenic value and we were able to supply a small proportion of the urgent demands which poured in daily. Since that time we have been able to meet all demands, which of course does not mean that every batch of vaccine we make can be issued. Far from it; the severe test employed soon allows us to select the good from the bad. A proportion of vaccine inferior from an antigenic point of view is shown by the tests. It will take more experience on our part before we are able to produce vaccine of which every batch will, automatically, be of high antigenic value and fit to be issued.

Our experiences of to-day confirm our original findings on the value of the brilliant work of Laidlaw and Dunkin, in that the use of prophylactics described by them protects fully against the injection of large numbers of infecting doses of the distemper virus.

FIELD WORK.

It can readily be understood that some interesting experiences must have resulted from the use of the many thousands of doses of prophylactic which have been issued, and that all the experiences have not been entirely free

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from untoward results. In order to get as full information as possible on the true results of the use of the prophylactic we have kept in close touch with many veterinary surgeons and have visited kennels, etc., where results of an unpleasant nature have occurred. In addition, we attended a meeting of dog owners some time ago, when a special committee was set up to procure accurate information with the collaboration of the veterinary surgeon concerned. Later, we sent an enquiry to all veterinary surgeons in Britain who had received the prophylactic. Reports have been received from about 200 of the 700 veterinary surgeons concerned and refer to over 11,000 dogs.

As the reports received cover the greatest part of the prophylactic issued, it appears that those who have had most experience have found it convenient to acquaint us with the result of their experiences and, in all probability, these reports are a fairly true representation of the true state of affairs existing and the results of the use of the prophylactic. An analysis of the reports received shows that about 260 dogs injected with vaccine or virus or both have died some time after the treatment, from illness attributed either to the direct or indirect action of the vaccine or virus and occurring within days or weeks of their administration, or to an attack of an illness described by the owner or veterinary surgeon as distemper occurring weeks or months after immunisation, *i.e.* 2·4 per cent. of the immunised dogs have died after immunisation from causes said to be due to illness attributable to the use of the vaccine or virus or to their being insufficiently immune after the treatment to withstand natural infection with the virus. In addition, about 8 per cent, of all dogs immunised have, according to reports and personal experiences, suffered illness as described above and have subsequently recovered. As far as evidence is available, therefore, the prophylactic we have issued has been satisfactory in over 90 per cent. of instances.

The reports can be roughly grouped into two classes, if we adopt the point of view of the writer :—

(*a*) Unsatisfactory.

(*b*) Satisfactory.

Unsatisfactory reports refer chiefly to severe reactions following the use of vaccine or virus or both, disease of a nervous type and the occurrence of illness described as distemper, *i.e.*, a breakdown in immunity.

I may say here that we have not actually received a report in which the method or the prophylactic is declared useless, though it has come to our knowledge that some dog owners, especially Ms.F.H. are inclined to view the results as being of such an unsatisfactory nature as to merit its discontinuation.

The following are typical examples of reports received :—

" The following is my experience (141 doses used) :—

" The first batch of 20 couple all did very well, with no disturbing results. The second batch of 15 couple were nearly all affected with very severe broncho-pneumonia and about ten couple died. Several other batches I have done since the above, and from reports I gather that it was quite successful. However, a few weeks ago I inoculated 20 couple and I think I can say that without exception nearly every hound is suffering from a very severe cerebro-spinal disease."

" I am writing to tell you that of ten greyhounds I inoculated with your distemper inoculation, three have developed fits. The vaccine was given on October 30th and the virus on November 9th. Eight days after the virus one dog developed fits and died that day. Three days later two others developed fits and are still having them. These dogs were in good health, five months old, and the temperatures were taken from a week previous to giving the vaccine and to seven days after virus. I do not see how they can have come in contact with any distemper, as these ten puppies were kept in a field kennel by themselves and during immunisation were only exercised in this field."

" On July 22nd and 29th respectively I inoculated six puppies. Five to seven days after the injection of virus their temperatures were 102°-103°, all having a slight rise in temperature. One of these dogs was on show in December and, 12 days later, this and several others running with it had an acute but rapid attack of distemper—one had a temperature of 105·6°, loss of appetite, discharge from eyes and nose, and the others had temperatures of 102°-103° and had bad coughs—these dogs all recovered in three to four days."

" During the past two months, five-and-a-half couples of uninoculated puppies have been returned from walk to the Kennels. About a month ago, distemper developed among these. Symptoms :—A cough, rise of temperature up to 104·8°, pulse very frequent, respirations very much accelerated, a discharge from the eyes and nose and dribbling from the mouth of a blood-stained catarrhal fluid. Two or three also passed blood in the fæces. Of these 11 puppies two have died, two have had opacity of the cornea to the extent of producing blindness and one a slight opacity. The opacities are now slowly clearing. It is a great disappointment that the distemper, or its complications, among the uninoculated puppies has been contracted by the inoculated hounds. During the last three weeks, 16 hounds have been or are so affected and two have died. Two of the 16 have developed the condition a few days, but at present not in such a virulent form as some of the others. Symptoms have been very much the same as in the uninoculated puppies, except that with two exceptions there has been practically no discharge from the eyes and nose, but the dribbling from the mouth of the blood-stained catarrhal fluid has been more excessive ; in fact, the amount in some cases has been copious. The most extraordinary thing to me is that none has had a rise of temperature, the highest recorded being 102·4°, the rest running from 101·4° to 101·8°. To see hounds almost gasping for breath and coughing up such an amount of blood-stained fluid without a rise in temperature is astonishing."

" I have immunised in all forty-eight (48) hounds and one sheep dog. Of these about a dozen hounds have died, so I am told by the owner. I have only seen one sick hound and he was in a sorry plight. I saw him seven days after he received the virus. He was very emaciated, purulent discharges from eyes and nose and both lungs were pneumonic. This case, I am told, is typical of the rest of the fatal cases.

I vaccinated 42 hounds on November 29th and they received the virus on December 11th. I vaccinated six hounds on December 3rd and they received virus on December 13th. The hounds were not isolated, but were collected together in numbers varying from 12 to half-a-dozen and less for inoculation of the vaccine, and no temperatures were taken. I am aware this was against instructions and I pointed the risk out to the owner before proceeding. I found one hound suffering from distemper, as we see it, after receiving the vaccine, but most of them only showed illness after receiving virus. Most of the hounds have been ill, more or less, but the majority have recovered and it appears to me that the robust strong dog has survived. One hound has died on a farm and his pal under exactly the same conditions has never showed any sign of illness. Owners, in my opinion, must be impressed with the necessity of carrying out this treatment strictly according to instructions, with perhaps more stress laid on the taking of temperatures both before using the vaccine and virus."

"Four 10-months-old Irish setters were inoculated with the vaccine on May 15th, 1929, and with virus on May 22nd, 1929. All went perfectly well until May 29th, 1929, when I was asked to call and see them. Two of the dogs had then got temperatures of 105°, refusing all food, etc. When I saw them two days later they were both showing symptoms of acute distemper, *viz.*, diarrhœa and purulent discharges from eyes, ears and nose, also exanthematous eruptions on abdomen. I visited them daily until June 6th, by which time they had very much improved, *viz.*, temperatures normal, discharges practically ceased and feeding well. These dogs were acutely ill for four days but made a very quick recovery and when I finally saw them on June 13th they were normal in every way and no sequelæ ever developed. The other two dogs remained normal throughout. The last one I vaccinated, *viz.*, a four-months-old cocker spaniel, never suffered the slightest inconvenience either after the vaccine or virus."

Satisfactory results refer to the complete absence of any untoward sequelæ following immediately after the use of the prophylactic and to immunity being established when actual attempts to infect have been carried out.

The following are typical of such satisfactory reports :—

On December 18th, 1929, a veterinary surgeon writes :—

"I beg to say that my experience of its use coincides with that of those who consider it gives satisfactory results in more than 99 per cent. of cases. My experience has been limited to the use of about 100 doses. Finally, I consider that if care is taken that all subjects be in good health and free from worms at the time the injections are made, the method is 100 per cent. effective and free from risk."

Writing on December 26th, 1929, a veterinary surgeon reports :—

"The number vaccinated is only about 40, but few of these showed even slight malaise; I know that many of these have been in contact with dogs down with distemper and none has contracted the disease."

A practitioner writing on December 30th, 1929, reports :—

"I have definitely exposed two vaccinated hound puppies to distemper infection; no signs of illness were observed in either pup. I believe that of approximately 60 hounds not one has shown distemper symptoms, nor has there been any distemper among the 26 hounds vaccinated in the spring, 1929, and now in kennel."

After the use of 24 doses, a member of the profession, reporting on December 12th, 1929, says :—

"We have had no bad symptoms following inoculation, and now after two years had no distemper amongst those treated, but we had it with those not."

Reporting on the results of the use of 113 doses, Mr. A writes :—

"I must tell you that, the pups having been vaccinated, we have given them every chance to contract the disease; that is, we have deliberately kennelled them with hounds affected with and dying of distemper, but they have always remained immune with perfect appetites and habits."

A veterinary surgeon used 14 doses only and says (December 21st, 1929) :—

"None of the puppies has shown any signs of distemper since, and 11 of them have been to big dog shows, three or four times in London, so they have had every chance of infection."

A further example is the report of Mr. B, who says :—

"Of hound puppies vaccinated this summer and autumn—some 125 odd—I have had no report of symptoms of distemper in any of them."

The following is also interesting :—

". . . . 20 foxhounds inoculated in February did not show any symptoms of distemper when it broke out in X's kennels in the early spring. Also six greyhounds that I inoculated did not get distemper when they went to a trainer's kennel, although a very virulent form of distemper occurred."

Mr. C, who used 20 doses, says :—

"All the dogs I vaccinated with your vaccine and virus have gone on remarkably well with no after effects and this notwithstanding that the kennels they occupied were hotbeds of distemper. The casualties which formerly occurred were deplorable and I can only ascribe the success accomplished in 1929 entirely to the use of the vaccine and virus. I shall in future recommend and use your methods of immunisation of dogs."

Mr. D writes :—

"Ten lots of dogs done (22 dogs in all)—11 have been definitely exposed to infection and have remained well."

A recent report (February 5th, 1930) by a veterinary surgeon who used 80 doses is :—

"I can say that in no instance have I observed any ill results as a result of the vaccine or virus, and I am positive that in the great majority of cases the inoculation confers a solid and lasting immunity."

## Discussion on Some Possible Explanations of Mishaps.

### *Standard of the Prophylactic.*

Naturally, in considering possible explanations for the alleged failure of this method of immunisation from a safe and effective point of view, the quality of the vaccine and virus must be dealt with. It has been suggested that the manufacture of vaccine and virus on a commercial scale cannot be so well controlled as when these products are made on a small scale for experimental purposes, and thus the quality of the vaccine and virus suffers. It has been our endeavour to produce the vaccine and virus as laid down by the originators of the method of immunisation and to adhere to their recommendations. We have to some little extent deviated from one or two of their original suggestions. For example, while they recommended that virus should be injected intradermally, we have advised its use subcutaneously. Some veterinary surgeons have criticised this; I desire to point out here that it was only after prolonged experimentation that we decided that the subcutaneous administration of virus was as safe and as effective as by the intradermal method. We further recommended that the interval of seven days between the vaccine and virus injections could safely be extended to fourteen or more days. Again, this conclusion was only arrived at after much experimentation and I am pleased to say that field results seem to confirm this decision and justify our recommendation. An extract from the following report is of interest in this respect.

"I inoculated five foxhound puppies with vaccine, but owing to there being a number of bits in the vaccine, I thought two of the puppies had not a full dose. I therefore in 14 days gave them a second inoculation of vaccine. Eight days after that I gave all five the virus; therefore three of them went for 22 days between the vaccine and the virus. On the 4th day one of the three was a bit off colour—temperature 104° and slight mucous discharge from eye . . . went on all right. It would therefore seem from

this that it would be safe for at least three weeks to elapse between vaccine and virus."

In considering the value of the vaccine and virus issued during the past year, the percentage already referred to must be borne in mind—it has, as far as the evidence goes, been satisfactory in over 90 per cent. of cases.

Abscess formation has been recorded following the use of vaccine and virus in spite of rigid aseptic precautions during injection, and it has been thought by some that the products themselves were responsible for these abcesses. Personally, I am of the opinion that the abscess formation following the administration of vaccine and virus is not of the type produced by organisms usually associated with pus formation. It is possible that most of them are evidence of the local tissue reaction which occurs in certain individual dogs, although the following extract from a report received is interesting :—

"A few of the dogs suffered from local abscesses at the seat of inoculation, quite easily accounted for : they were in dogs that were a bit itchy in their coats. They scratched and infected the wounds."

*Condition of the Dog and Exposure to Infection.*

A possible explanation of some of the mishaps, especially those relating to the occurrence of so-called distemper or exaggerated reactions after vaccine and virus, is the inoculation of dogs which have been recently exposed to infection, especially with naturally occurring distemper virus, and which are, in all probability, in the incubative stages. Great care has been taken in the formulating of instructions for the guidance of the immuniser, and particular stress is laid on the recording of temperatures before immunisation is proceeded with and during the whole course. An elevated temperature must be taken as some guide to infection with naturally-occurring distemper or other organisms and serves as an indication to withhold the administration of vaccine or virus. A considerable amount of evidence has been accumulated on this point and shows that many mishaps soon after the administration of virus have been due to a disregard of this important instruction. The careful veterinary surgeon who insists on a careful record of the temperatures being kept before the dogs are subjected to the treatment usually escapes any untoward results following the use of vaccine and virus. One veterinary surgeon rightly says :—

" I have insisted that the owner should take the temperatures twice a day before the first injection, and in several cases where I had doubts of this being done I have declined to use the vaccine."

We have also records showing that dogs have been definitely exposed to distemper infection during their course of vaccination. An example of this is the case of a veterinary surgeon who, when speaking of mishaps after virus with the development of symptoms of distemper and death, says :—

" I am of opinion that these puppies were infected with distemper when they were inoculated. I heard after they were vaccinated that distemper was bad at the kennels where they came from and they had been on the premises for about a fortnight."

It is not surprising to find that most of the pups developed an illness resembling distemper and some died. The method is perfectly safe as far as setting up of diseases in dogs is concerned, provided the dogs are suitable subjects for inoculation and that the instructions laid down are carried out. The use of a living material like virus calls for the strictest attention to detail and much more care is required in its use than in the use of an ordinary dead or killed vaccine.

*Susceptibility of Special Breeds of Dogs to Virus.*

There is little doubt that some breeds of dogs are more sensitive to the action of the living virus than others. Several veterinary surgeons point out that highly-bred dogs seem to react more severely and the same applies to breeds, *e.g.*, one report says :—

" It is an extraordinary thing that very well-bred dogs seem to react more severely, and with very often fatal results, than do others, and the same applies somewhat to breeds, *e.g.*, greyhounds are desperately ill after the vaccination."

*Wrong Diagnosis.*

We have some evidence which suggests that other diseases than that due to infection by the virus of distemper exist and present symptoms resembling very closely those regarded by veterinary surgeons and dog owners as distemper. There is every reason why these diseases should be regarded clinically as distemper, for it was not till Dunkin clearly described distemper symptoms as produced by injecting dogs with distemper virus that we had a clear conception of the clinical aspects of the true virus disease and how it differs from what has been regarded as distemper for years. I have been particularly impressed on this point since we carried out an experiment in which we infected some dogs highly immune to distemper virus with cultures of *B. bronchisepticus* and produced a clinical picture which was diagnosed as distemper by more than one veterinary surgeon. A further experience impressed me on this point. Among some pups in isolation, to be used eventually in distemper work, an acute illness occurred in which the symptoms presented were those of field distemper.

The most careful examination of the discharges, blood and tissues of a number of these pups taken during life and immediately after death from dogs in all stages of the disease failed to reveal the presence of the distemper virus. From this and other work we have some evidence that a hæmolytic streptococcus may bear some relationship to a disease whose symptoms resemble those of field distemper.

The valuable test, in which use of the ferret is made, devised by Laidlaw and Dunkin, decides at once whether the distemper virus is present in a suspected discharge or tisssue and by this means an accurate diagnosis can be arrived at. It is highly essential that all alleged breakdowns in immunity, *i.e.*, suspected cases of distemper occurring after immunisation, be investigated and we are asking all veterinary surgeons and dog owners to report all complaints either to Major Dunkin or ourselves so that material from dogs which are ill can be investigated in the laboratory to see whether the virus of distemper is present—if not, to find what organisms are present and if they bear any relation to true distemper.

### Discussion.

Major Hamilton Kirk, responding to the President's general invitation to some Fellow to open the discussion, said that they had listened to a very instructive paper from Major Dalling—one which was at once concise, informative and interesting—and he was very pleased to

hear that such a satisfactory percentage of successes had attended the use of that method of immunisation.

As regarded the non-successes, if one read the letters that appeared in the various dog papers week by week, one would find that the writers seemed to be imbued with the opinion that when a dog was inoculated against distemper it was immune against every disease. They said that since their particular dog had been vaccinated it ran to the left or to the right, chewed its tail, or did some other absurd thing, and they attributed every departure from the normal as the direct outcome of anti-distemper inoculation.

Such an attitude was, of course, absolutely illogical and ridiculous: no such dog was immune against everything else for the rest of its life, and he thought that many cases of pneumonia, enteritis, or nervous derangement having an entirely separate etiology, were regarded as instances of failure of this method.

In no animal upon which he had used the Mill Hill method had he observed a reaction after the vaccine or virus, except in one instance in which an abscess occurred. That was some months ago, and the abscess had cleared up quite well and the puppy was now in perfect health.

A five-months-old Sealyham which had received the preliminary vaccine from another veterinary surgeon, became unwell on the second or third day afterwards, going off its food and developing a temperature. It remained in that condition for some time and he was called in to attend it. Only now could he say that it had entirely recovered. He would like to ask Major Dalling whether he considered that that dog should now be vaccinated with vaccine and virus as though nothing had happened.

He had attended a Peke puppy—a very small specimen—and he had been treating it for what he diagnosed to be neuritis, complicated by an unaccountable opisthotonos. During eight days in his hospital the symptoms abated and finally disappeared. He was asked the previous day if he would now commence to vaccinate the dog against distemper. He presumed there would be no reason why it should not be done, but he should like to ask whether a tiny dog, such as that Peke, should receive the same large doses of the prophylactic as were given to larger and older dogs. His opinion was that pups should be immunised as soon after weaning as possible in order to give the subject the least possible opportunity of contracting the disease naturally.

He had to record his first failure of the prophylactic three weeks ago: A cocker spaniel he vaccinated last July, was one of a litter of two. The other was purchased by a lady who did not have it immunised, and very soon it caught distemper and died; the one under discussion thrived and grew into a fine healthy dog—until now, when it was down with pneumonia in one lung, complicating an illness which he could not clinically distinguish from distemper, and he was having the greatest difficulty in keeping it alive at all. Swabs had been sent to Mill Hill and should the expected report state that that was not a case of true distemper, but was a bronchisepticus infection, the question arose in his mind whether it would not be possible, in course of time, to immunise against *B. bronchisepticus* and streptococcus infection, as well as the distemper virus, simultaneously? As the ferret was used for laboratory diagnosis he would like to ask whether the ferret was immune to *B. bronchisepticus* infection?

He would be rather pleased if, in the report of the meeting, the extracts that Major Dalling had read from veterinary surgeons' letters could be embodied.

There were many critics, at home and abroad, of this immunisation process, and he thought they ought to read them, and learn thereby the percentage of successes obtained. He would like to mention that there were frequently a number of floating particles in the virus which clogged up a fine needle, and in dealing with virus under these circumstances one was rather apt to spill little drops and so spread infection about. He thanked Major Dalling for his paper, which had been most instructive.

Mr. Cornish-Bowden said that he had enjoyed Major Dalling's paper immensely, and he thought that, considering some of the things that he knew the essayist had come across, he had been most kind in his criticisms of the results of the vaccine and virus which had come to his notice.

There were one or two things upon which he would certainly like enlightment. He was one of those veterinary surgeons who saw the cases that Major Dalling had in immunised dogs which were infected with *Bacillus bronchisepticus* material. He had also seen cases in dogs which had been infected with the virus of distemper, and he thought that 90 per cent. of veterinary surgeons would agree with him, if they vaccinated dogs with each of those products, that those who were infected with the *Bacillus bronchisepticus* material gave an absolutely ideal picture of distemper in dogs, whereas those which were infected with the virus would cause them much doubt as to whether they were suffering from distemper or not. They had a certain amount of depression about them; a mattery discharge from the eyes and nose, and they did not present the picture of distemper that one knew in daily practice. He was anxious to see some of those cases in which Major Dalling had found pure cultures of the hæmolytic streptococcus of which he spoke. All that rather made one doubt whether the virus isolated by Carré, and which had been used by Laidlaw and Dunkin was, after all, the sole cause of distemper, or whether the cause lay amongst the various germs which made up distemper as they knew it in the field to-day. They had the pre-conceived idea that the causal organism of distemper was a germ which lowered the vitality and laid the body open to infection from any organism that it happened to meet. That was what many of them had thought for a great number of years, but after all that, he thought it was very doubtful whether the virus that was found by Carré was, *per se*, the organism of distemper.

Major Dalling, in his paper, spoke of the various ill-successes that had attended inoculation, but there were some types of cases that he did not mention at all, and he (Mr. Cornish-Bowden) had had several of them. He had had cases that had been inoculated when young; they had shown no very great reaction to the vaccine or the virus and they had grown up, but they had not grown up into the dogs that they were expected to grow into; they had grown up more or less abortive animals—some had bodies out of proportion to their limbs and some had heads out of proportion to their bodies. Some had legs longer than they should be, and altogether they did not throw true to the type of animal that their parents and grand-parents were. Then there were others that had more or less immediately shown a distinctive form of hysteria. They were all fairly well acquainted with the common or garden form of hysteria, and they knew also that hysteria, in the last 6-12 months, had altered considerably in its symptoms: they were now more accustomed to get epileptiform convulsions following on the ordinary run of hysteria than they had twelve months ago. Further, in several inoculated dogs he had had experience of an encephalitic form of hysteria, which was very severe and from which they never recovered. Whether or not that had anything to do with the inoculation he could not say, but circumstances pointed very strongly in favour of such a supposition, which also suggested to him the question whether there was something else being injected into those dogs as well as the virus isolated by Carré. It was quite possible that a good many of those encephalitic symptoms were due to some virus of which they did not know the nature.

Major Hamilton Kirk had said that he thought that immediately after weaning was the best time to immunise puppies. He thought so himself once, but he had now come to a different conclusion. They were all more or less acquainted with the typical picture of the cankered mouth shown by a dog which had suffered from distemper prior to the eruption of its permanent teeth. He had seen dogs that had been immunised according to the methods recommended: the dogs had been perfectly well and they had grown into very satisfactory specimens with this exception, that when they had shed their milk teeth and the permanent teeth had been erupted, they had been cankered teeth. The dogs had shown no signs of

sickness in between and they gave no indication why the teeth should have been devoid of enamel when erupted.

Captain Dunlop Martin stated that he would like very heartily to thank Major Dalling for his very excellent and instructive paper. Unfortunately he had no criticisms to make on this particular method because he had had no experience of it so far. Quite early on, following the issue in bulk of the vaccine, he, perhaps unfortunately, heard of some unhappy experiences following upon the use of the vaccine—whether they were true or not he did not know—and so far he had not had the pluck to go in for it.

He was certainly rather struck by some of the remarks that fell from Major Hamilton Kirk, and to which he thought Major Dalling might perhaps be wise to give due consideration, particularly from the point of view as to whether anything else was being inoculated with the virus; whether there was any other organism, filter passer or not, that was in the virus; and again, with regard to what Mr. Cornish-Bowden had said, he thought it gave them much food for thought. He would like to echo what Mr. Cornish-Bowden had said with regard to the question of the difficulty regarding the clinical picture that one got of what was considered by the layman to be distemper. For many years now he had held the view that what was regarded by the layman as distemper was not pure and simple distemper: it was distemper that had become complicated by other extraneous so-called secondary organisms. He held the view that distemper itself, *uncomplicated*, was a mild disease; he was quite sure that many dogs went through distemper without anybody suspecting that they had it. They might show a little malaise, various little symptoms hardly enough to be noticed by their owners, but when animals were brought to one later, meticulous and careful questioning would often elicit the fact that slight symptoms had been noticed before one saw the animal, possibly a few weeks, possibly a few months even, previously, and he was quite certain that in thousands of cases the animals had passed through distemper without its being noticed. Had care been taken of those animals, the other symptoms about which they were consulted at varying periods later on would not have arisen.

Mr. Henry Gray said that he had not had much experience of this new system of vaccination, but since Major Dalling read his paper on the subject at the Dog Club some of the animals which he had vaccinated had developed, two three months and one nine months later, typical distemper—distemper as he called it and as the public called it. It was all very well for some of those gentlemen to think that distemper ran a short course in many instances; in his experience the course of the average case of distemper ran for five or six weeks at least, and he was the first in this country, he thought, to point out that the early stage of distemper was frequently overlooked; he was very glad to see that the Distemper Committee confirmed that, but he was not going to accept their conclusion as to the course of distemper. Some thirty years ago he used Dr. Phisalix's vaccine, and he supplied him also with the unattenuated cultures of *Pasteurella canis*. He (Mr. Gray) could produce all the symptoms of distemper with the latter and if put with distempered dogs those which were given it did not contract the disease.

It was all very well to tell the public that there were two or three diseases, but they must cater for their requirements. If dogs developed all the symptoms of distemper as they knew it and died after they had been vaccinated, the public would say that there was something wrong somewhere. Dr. Phisalix produced all the symptoms of distemper with his virulent cultures of *Pasteurella canis*. Phisalix also produced the usual symptoms or forms of the malady with filtrates of his cultures of *Pasteurella*. As to a streptococcus producing serious effects in distemper, nearly 30 years ago the late Dr. Phisalix pointed that out and this finding was confirmed by Professor Lignières. Again, Carré, in his experiments, could produce all the symptoms and complications met with in natural distemper, even intussusceptions, simple or compound, with his virus; not only that, he failed to discover the virus in dogs that died of distemper or in their secretion, discharges, exudates, blood or tissues, after a certain period, and he (Mr. Gray) would like to know from those gentlemen who closely followed Carré if they were going to draw the conclusion, by testing the blood of animals that died some time after, vaccination or natural attacks of distemper, that it was not distemper, by their negative findings. According to Carré, that would not hold water. His idea of that filterable virus was that it was the open door or formed a suitable soil for other organisms in the body or surroundings, enabling them to do their bad work, in the same way that the organisms of swine fever, which were normal habitants of the pig's system, caused the lesions of swine fever, although they were not the cause of swine fever as produced by de Schweinitz and his followers.

He had no fault to find with the vaccine for the two or three months that he had used it, although he got an abscess in two puppies only a fortnight old which he attributed to the bulkiness of the dose.

Major Kirk said that the virus blocked the needle; he found that it was the prophylactic which blocked the needle. To avoid that they simply had to use a needle of a larger calibre.

The traditional knowledge of dog owners and veterinary practitioners was that a mild, moderate or severe attack of that complex known to them as "distemper" gave an absolute recovery in 95 per cent. of cases: immunity to the end of their lives without their being subject during the interval to the simplex, analytical or laboratory forms of distemper, as alleged now to follow vaccination.

He was not going to accept the conclusion that that virus would prevent distemper absolutely, though it might in the majority of instances. In some years we got distemper very mildly and it was possible that we had hit upon a mild year or two. The conclusion to which he had come was that it was possible to get any symptoms they liked from the distemper virus, as they did from the influenza virus in the horse, etc.; it was the pilot for other organisms. They could get those mixed infections, and having passed through several dogs they had become most virulent, so that the usual earlier symptoms of distemper were masked.

He would like to draw their attention to aerial infection; his experience was that aerial infection was practically *nil*. He had found that soap and water was quite good enough to prevent the virus from being conveyed by the hands, etc., and he was pleased to see that the German Commission on foot-and-mouth disease found that washing soda (1 to 2 per cent.) was sufficient to kill the virus of foot-and-mouth disease. In his opinion soap and water was one of the best disinfectants.

As for those nervous troubles, he had seen them develop frequently three months and in some instances as long as eight months after an apparent recovery from distemper, and, it was quite possible, he thought, for the virus to be retained in the system for a long time in certain cases. As they saw from consideration of influenza in the stallion, they might get the virus retained in the vesiculæ seminales for years and the animals were not infective until they covered the mare: he thought the same thing might apply in distemper.

Major A. A. Comerford stated that he had had a considerable amount of experience with that vaccine and virus process when he was obtaining supplies from Mill Hill, and it might be within the memories of members that he read a paper there over twelve months ago giving his experiences. Since then he had had a certain amount of experience with material from Messrs. Burroughs Wellcome and until recently everything had gone quite smoothly as in the past. Unfortunately, within the last few days he had had reports from two different pack of hounds which had been vaccinated, both reports stating that distemper had broken out. As they had heard that night, it was impossible to say from clinical symptoms whether it was distemper or not, but to him it looked like the old-fashioned clinical distemper. These outbreaks occurred in hounds inoculated last summer; both packs were done during

August and in neither was there any reaction to either vaccine or virus. Nothing happened until they were assembled in kennels three weeks ago, when almost immediately these symptoms developed. That was a disappointment to him, because he had been advocating inoculation. In other instances, however, they had never had any complaints at all, and in two kennels which he had done for four seasons they had never had a case of distemper or of suspected distemper.

There had been a certain amount of criticism lately in the *Horse and Hound* from a well-known Master of Hounds who evidently had some trouble after inoculation. In his letter he said that he was quite satisfied with the treatment of his hounds in the past with this reservation, that in future he would not have his puppies inoculated before they went out to walk because he understood that that was the reason why the process had been a failure. He (Major Comerford) had done over two hundred puppies at eight weeks old and some were now two years old; they had been exposed to two or three outbreaks of distemper and they stood up against it, so he saw no reason why puppies should not be inoculated at eight weeks old.

Major Hamilton Kirk had raised the question about the dosage to a tiny Peke. He gave the full dose to a twelve-weeks-old puppy under 2 lbs. in weight and there were no bad effects.

Dr. A. Leslie Sheather remarked that there were one or two points that occurred to him, especially in regard to distemper vaccine, and he thought one might best be expressed by saying that one of the big mistakes the public made was to think that one could produce immunity with mathematical certainty, vaccine (2) + animal body (2) = immunity (4): one could not achieve this desirable result. The public did not realise that there was endless variation in the biological characters of the living body. One saw that even in the conditions of vitality of the human subject; one knew that people who were robust and vigorous often died of the slightest infections, and also that people who had been frail all their lives were often resistant to infections. Another point that he thought was only somewhat obscurely referred to was the question of plurality of virus. Foot-and-mouth experience had shown that there was more than one virus in that disease, and it occurred to one that, in connection with distemper, plurality of virus might be a factor which would explain a great deal.

Captain Comerford had raised the point of inoculating puppies and getting no sign of reaction, yet nevertheless securing a strong degree of immunity. He would like to ask whether the production of reaction during the immunisation had any bearing on the strength of the immunity so conferred.

Professor J. G. Wright said that, speaking as one who had had no great experience of the Laidlaw-Dunkin method of immunisation against distemper, but as one who had endeavoured to make a study of the clinical aspects of distemper, one must bear in mind that, whilst any prophylactic measure was highly desirable, they had still a great deal to learn as to those clinical aspects and how to treat them when they arose.

As an example of the variety of opinion which existed, Captain Dunlop Martin had said that he considered that distemper was a mild disease, but it was his (Professor Wright's) opinion that distemper was the greatest scourge with which they had to deal in any of their animals, and he knew of no disease of man in this country which was so serious as was distemper amongst dogs.

One would like to ask Major Dalling what was the original source of the infection that they used for producing their vaccine. Major Dunkin had used a virus obtained from a Canine Distemper Hospital in London; and diagnosed by several veterinary surgeons as distemper. How often was this reinforced with naturally-occurring distemper, or did they continue it with what one might describe as artificial distemper? As the result of their investigations they could, no doubt, let them know at what stage of the disease distemper was most infective, and which was the route by which the infection arose.

With regard to the period of incubation, those who had written on experimental distemper stated that it was four days, but it was his experience that in naturally-occurring distemper the period of incubation was anything up to three weeks. He regarded the sudden onset of a high temperature in a young dog as distemper; it might not be—if it was not, that did not matter. After a few days the temperature subsided and the animal appeared normal, the second rise occurring several days or even a week later. To be certain that the dog was not infected at the time of the initial inoculation, temperatures should be taken for a longer period than a week. Those bronchisepticus infections were most disconcerting to them as clinicians. From the results of the experiments that had been made on distemper, one would like to ask if they had absolutely established that those bronchisepticus infections were contagious. If they were, he did not see how they could distinguish them clinically from distemper.

One speaker remarked that on taking a puppy's temperature prior to vaccination he found, much to his surprise, that although the puppy was full of fun and jumping about, its temperature was 105° F. That prompted him to quote the following experience:—When in practice he used to examine greyhounds prior to their entry into a greyhound kennels, and found much to his consternation, on examining six dogs just arrived by road from the railway station, that five of them had a temperature of 105° F.; in two hours' time, however, their temperatures were perfectly normal and remained thus. Bearing this in mind he placed little reliance on the temperature of a dog in an excited state.

Finally, with regard to cankered teeth—not a very important point, he agreed, but one heard so much about it as the result of distemper—Mr. Cornish-Bowden had said that it was due to an infection before the teeth erupted: he agreed, but that infection was not distemper. Puppies of three months old did not get over distemper and then have cankered teeth; in his experience they died, 90 per cent. of them.

Professor G. H. Wooldridge stated that he had been very interested indeed in listening to Major Dalling's account of the experiences that had been referred to him in connection with that distemper prophylactic treatment. His own experience of it was not so extensive as that of some people, but it had been sufficient for him to form some opinion as to its efficacy, and his conclusion was that it was distinctly efficacious and should be recommended on every possible occasion.

The process, however, was subject to pitfalls, and possibly they would find that in some instances the immunity which had been anticipated had not actually been developed. He had not met with any such cases, but that did not mean that he had had no accidents or bad results—he had had several accidents which were directly attributable to the method. He spoke, in the first instance, of abscess formation. No one could take more care in regard to asepsis in the introduction of the firsst vaccine than he had taken, with his colleague, Mr. Holmes, but in several instances they had had abscess formation. In one puppy, a chow, they had abscess formation and when the dog was due for the virus infection the abscess was very marked—it had started to come into evidence the day before. Obviously one declined to proceed with the virus in that case. The dog was put under treatment for the abscess and two or three weeks were allowed to pass; then it was decided to use the vaccine again, because he felt very considerable doubt whether they could expect any immunity from the result of the vaccination where there had been abscess formation. After the repetition of the vaccine injection the dog again developed an abscess, on the other side of the body. In that case he thought he must give the explanation that there was some tissue reaction which was quite independent of any infective material injected with the vaccine or of any fault in the technique at the time of injection. When that second abscess had been produced the owner asked him what he thought about it; could they proceed with the virus? He (Professor Wooldridge) said most emphatically "No," because he could not suggest that the puppy would stand the virus injection. The dog

did not have the vaccine again, but it might be that the dog was immune to distemper infection; he should keep him under observation in order to see.

Another bad result he had experienced, had not yet been referred to—a case of chorea. A young ten-months-old retriever was vaccinated in the month of August last, with an interval of ten days between the two injections; there was no indication of anything wrong until the latter end of November when the dog was brought to him for some twitching on his head. That progressed until, towards the end of December, the dog could not stand on his legs. He was very bright and fed well, but had this muscular inability and chronic spasms. The owners said that they were going to carry on with him, and the dog was still living. He was considerably better than he had been; he could stand and walk a number of paces comparatively well, though he still had pretty bad chorea. If the dog was ultimately destroyed they should be glad to afford Major Dunkin the opportunity of sectioning the nerve tissues.

Those were the only ill effects he had seen from the process and he had, to his own satisfaction, demonstrated the value of this prophylactic method. If they were going to get successes in 90 per cent. of cases and even if there was dead failures in 10 per cent. the method would still be worth while. If they could reduce the mortality of 50 per cent. or 60 per cent. to 10 per cent. or 5 per cent. or less, then it was well worth carrying out.

Mr. Cornish-Bowden had referred to some of those mixed infections and the difficulties of distinguishing between those catarrhal conditions which were not true distemper. Some years ago he drew attention to the dissimilarities between a form of broncho-pneumonia in the dog and the symptoms of distemper, pointing out the specific distinctions between those two conditions easily distinguished in adult dogs. He had made it quite clear in his contribution on the subject in the Encyclopœdia associated with his name.

The difficulties arose in the younger dogs where one had got a dual infection, then you had got two super-imposed affections and so you could not make a distinction. He would go further and point out that many of the abdominal symptoms that were produced were similarly due to a secondary invader and that they could get those same symptoms produced in dogs quite independently of distemper. He had felt that the same might also apply to the nervous complications which were met with in distemper.

He had one question he would like to ask in connection with the procedure; it was of some clinical importance and it was this: how long did a dog in the average case remain infective after the injection of virus? That was a matter of some importance, because they might conceivably want to introduce a dog that had been vaccinated into kennels of dogs that had not had distemper and had not been protected against distemper. He refused absolutely to have any dog left, in any kennels with which he was connected, that had been injected with virus; they had the living virus and that dog must be eliminating a considerable amount of it and must consequently be a serious source of infection to the kennels. But how long were such animals infective?

Professor J. McCunn said that the only remarks he thought he could make were to express his bewilderment, for the more he heard of that subject the more bewildered he got. The mystery started from a very interesting visit he, with others, was privileged to make to Major Dunkin at Mill Hill. They spent a most interesting afternoon and they all admired his work and the thoroughness with which it had been done, but to finish the proceedings Major Dunkin thought that he would give them an object lesson, and his announcement was as follows: " Now, gentlemen, we have got an animal here which I am presently going to show to you, which kennelmen, huntsmen and many veterinary surgeons would say had got distemper; now it has not got distemper "—and he produced the most beautiful clinical picture of distemper he had ever seen in his life. It was a pretty good rule in the terminology of diseases to follow what our forbears had called them, and they had named diseases from their clinical symptoms or appearance, and the name " distemper " had been applied to the condition which, he thought, they all knew as distemper. Previous to those experimental operations at Mill Hill, he never knew that there was such a disease as the present one which was called distemper: he was in the same position at the present day as if someone had carried out some investigations in a laboratory and had come out and said " You know measles?" He would reply " Yes." " Well, you know, it is not measles: the thing you and your father and your grandfather have called measles is not measles at all; this is measles ——— " and showed him something entirely different. (Laughter.) Why not give this new disease a new name?

He would like to ask, if any dog had been found running about or clinically suffering from that disease, how did they know it had got it, and if the ordinary distemper that they saw was not distemper, what was distemper? If that inoculation was really any good (and he was not in a position to criticise because he had not seen enough of it) would it be any good in such a case as the following? If a man had an infirmary for dogs and was unfortunate enough to get distemper in it, he had got a number of " birds of passage "—was it any good giving those dogs a dose of the vaccine, in order to carry them over their stay in the kennels? If that had been proved as a fact he thought it would be a most useful thing.

Mr. G. H. Livesey remarked that perhaps he ought not to speak, as he had had no practical experience of the use of that prophylactic, but he should like to be permitted to join in the discussion for a moment; there were one or two matters of clinical interest on which he would like information. He agreed largely with what Mr. Dunlop Martin had to say about the clinical picture of distemper, but he did not agree with Professor Wright's picture, though he agreed with the latter in his assertion that distemper was by far the most serious disease with which either the human or the veterinary clinician had to deal. He thought it would be admitted that distemper and its attendant evils were responsible for about 30 per cent. of the dog practitioner's work. If this prophylactic was going to be efficacious to the extent of 90 per cent., and all the dogs in the country were to be protected, then veterinary practitioners were doing a very generous action. (Laughter.) He should like to know if it were definitely claimed for this preventative that it gave an absolute immunity: he had heard that statement made but he did not know whether it was a definite claim. If it were, he wanted to know why the prophylactic should be so definitely effective when the disease itself, naturally acquired, did not give absolute immunity. One would expect a greater immunity from a natural infection than from what one might call a laboratory infection. Anyone who had seen much practice must be well aware that dogs could have distemper more than once; surely one could not expect better results from the use of any prophylactic?

Then, another point upon which perhaps Major Dalling would be good enough to give him information was as to what he considered to be the mode of infection. Would he also say whether he considered, from the work he had done, that the disease was essentially contagious, or infectious, or both; and, if he could go so far, would he say what degree of contagiousness or degree of infectiousness existed? His own experience was that distemper was not a highly infectious disease but that it was extremely contagious.

Captain H. S. A. Dunn said that as a practitioner dealing largely with dog work he had used a fairly large amount of that prophylactic. He was not altogether sure whether the practitioner who was dependent upon veterinary work for his livelihood was wise in inoculating all the dogs he could. Nothing had been said about fees, and to his mind that was a very important thing, in this connection. In his opinion, no dog should be inoculated under a guinea.

He did not believe that nervous symptoms could be attributed to the vaccine. He had had abscesses 48 hours after the inoculation, in spite of the taking of every precaution,

and he thought that in cases of abscess formation no dog should be inoculated with the virus, but with the vaccine at a later date. He had had similar experiences to those of Mr. Cornish-Bowden with regard to cankered teeth.

Mr. D. E. Wilkinson stated that he was sorry that he arrived too late to hear anything but just the end of Major Dalling's paper, but he would like to recount his experience in the use of that prophylactic.

He had done a considerable number of dogs in the last two years, and the process had never given him a moment's uneasiness: he had never had any bad results of any description—nothing but a very transient malaise and, as far as he was able to judge, it was absolutely effective. He had taken vaccinated dogs and exposed them for weeks at a time in distempered kennels and they had remained immune.

He was rather surprised to hear Major Dalling say that certain breeds were susceptible and reacted more than others, and that well-bred dogs reacted more than others. Nearly all the dogs he had done had been pure-bred dogs, including a large number of greyhounds, and in none had any illness been observed. He had, however, taken the precaution to avoid what he regarded as the most dangerous factor in all cases of distemper, *viz.*, infection with secondary invaders. He had found that dog breeders' kennels and hunt kennels always harboured secondary invaders very badly.

He had never expected the treatment to immunise against the bronchisepticus and had always regarded that as quite a distinct infection.

Miss K. W. Shedlock said that she had not inoculated many dogs, but the few she had done had been uniformly successful. The owner of one she had done quite recently asked if it could safely be inoculated when it was from four to five months old, because she understood that when a puppy was changing its teeth it was likely to have fits if it was inoculated. The same client asked whether her other dog, which she considered had never had distemper and which was getting on in life, should be inoculated, when it was nine or ten years old, in the hope of preventing its having it in its old age.

Mr. H. C. P. King referred to two cases of meningitis which he had had directly following upon the injection of the second inoculation and which developed after four or five days. Both these cases had recovered, however. At the moment he was dealing with an outbreak in vaccinated dogs which might or might not be distemper, though they presented the clinical picture of distemper. One of those dogs undoubtedly had meningitis, and they were waiting to see what would happen.

Dr. W. R. Wooldridge said that most people had the idea that in clinical distemper the disease was probably caused through the virus, which lowered the resistance of the animal to other organisms, and that those other organisms, developing in the animal, produced the clinical picture. He would like to ask Major Dalling if he thought that the development of an immunity to the virus made an animal more resistant to subsequent infection with other organisms, such as *B. bronchisepticus*.

Dr. P. P. Laidlaw expressed himself as being rather at a loss to know which of the many aspects of the subject he should speak about. One that seemed to him to be of great importance was the age at which the inoculations were carried out. Initially they recommended that the best age was probably about three months, but for various reasons in certain quarters that was found to be inconvenient, and, as Major Comerford had told them, he explored the possibility of doing the quite young puppy, and he had said that one could do it at the age of eight weeks. One of the reasons why they avoided a very early age was that there was no doubt that the suckling had got some kind of temporary resistance, probably from the mother. It had always seemed to him that if they proceeded to vaccinate at that age they might get some resistance from the vaccine; if they injected the vaccine he did see why the young puppy should not produce anti-bodies. But when one gave the virus the position was different; if there was some serum antibody from the mother in that dog, the virus would be killed off.

If they mixed distemper anti-virus serum with virus and put the mixture into a dog, no disease resulted and they would find that after a week or two that dog was still quite sensitive. That was a great contrast to what was found in other procedure, where, if you put in virus first and serum later, you might get a mild kind of reaction and then the dog would be found to be immune three or four weeks later. He was, therefore, of the opinion that if they vaccinated and then gave virus at a very tender age they could not expect to get a solid immunity every time. He thought that possibly that might account for some of the apparent failures which had been recorded.

In connection with reputed failures, they had had the opportunity of examining the carcases of a number of dogs which came through the immunisation satisfactorily and subsequently went down with a disease which proved fatal and which the owners and the veterinary surgeons in attendance said looked like distemper. From quite a number of such dogs—but not all—they had completely failed to recover the virus, *i.e.*, if they took such a dog's spleen and injected material from it into ferrets, those ferrets did not contract any disease that resembled distemper. On the other hand, they could recover various organisms from the carcass of the dog, and the biggest series of organism they had was the long-chained hæmolytic streptococcus. That seemed to be evidence that those dogs did not die from distemper, but from a streptococcus infection. In the same way, there were cases from which *Bacillus bronchisepticus* had been recovered. It was a point which they greatly desired to clear up—to find out whether those so-called breaks in immunisation, apparently deriving from a disease that looked like distemper, were true failures of the method or whether they were not. On the one hand they got a large number of dogs which seemed to be immune for years, and on the other hand they got such cases as he had just mentioned; it demanded a great deal more work before one could be confident about it.

At that advanced stage in the proceedings he did not feel that he should detain them by launching out upon a consideration of other aspects of the matter.

Dr. R. A. O'Brien (Director, Wellcome Physiological Research Laboratories) remarked that a few thoughts had occurred to him during the discussion, but he desired, before expressing them, to voice his personal thanks to Dr. Laidlaw and Major Dunkin for the work they had done and for much personal help.

Major Dalling, Mr. Mason, Mr. Gordon and he himself had had a great deal of worry over distemper; it had been a very big problem indeed to make material on a large scale, and Major Dalling, with that modesty which characterised most people who did things, had skimmed very lightly over that aspect of affairs. They had, for instance, an "anti-bark brigade" at their laboratories, where they had a large number of puppies, and two people were always on duty whose sole and prime responsibility it was to stop the dogs from barking. (Laughter.) No small part of the difficulty of manufacturing the product on a large scale lay in training a team, and he, as an outsider, who had been watching the thing pretty closely all the way through, might say that he had been struck with high admiration for the way in which Major Dalling had managed his team. (Applause.) It was no light matter to have to provide accommodation for about six different groups of dogs: their home-bred puppies; puppies coming from outside; differences in dosage, and so forth, yet in their whole history there had only been one outbreak of distemper, and that amongst ferrets, which could possibly be attributed to carelessness on the part of the people attending them.

On the question of infection, there was one experiment of Major Dalling and his colleagues which had impressed him much. The virus was kept going in ferrets in a small room: the original working strain had been secured from Mill Hill. In that room, and attended to by the same boy who looked after the various infected ferrets, there was always kept at least one normal ferret. That ferret was looked after by the same boy for weeks on end without

getting infected. That was a high tribute to the way in which the work was carried out. (Hear, hear.)

In connection with the mortality that had occurred, and that had been a source of deep distress to dog owners, who were mostly dog lovers, he had asked at times what would be the natural mortality amongst those 11,000 puppies. Major Dalling had told them that amongst the 11,000 vaccinated animals on which he had got reports the total mortality was about 2 per cent. One great difficulty had been the question of the standardisation of virus. Dr. Laidlaw and Major Dunkin had been good enough to tell them, in the course of their work, that one could not make virus, week after week, of exactly the same potency. It was very difficult indeed to attempt to work out a method of standardisation for it, because it had to be used within a few days of having been made. If they could ever get away from the virus as a second dose he thought that Major Dalling, his colleagues and himself would be happier people.

He was a little surprised that the question of immunisation with two doses of vaccine, as opposed to vaccine and virus, had not come up that night. On general principles one felt that the immunisation effect of the former method would not be as high: the question was whether it would be high enough to give protection in the field. On the evidence available he thought it would.

There was no doubt that they were dealing with the true virus: groups of inoculated puppies had been sent in to distemper hospitals, *plus* one unprotected puppy, and the same result invariably happened—the immunised puppies came back perfectly happy and the unimmunised one went down with distemper.

It was a matter of grave anxiety to Major Dalling and himself that reports of deaths came in and one wondered at first whether individual batches of prophylactic were bad. One had the big safeguard, however, that all the material was made in big batches, and the history of general immunology, which had been a subject of special study with him for 20 years or more, showed that, when a serum institute had sent out a contaminated batch of serum or vaccine, many people were simultaneously injured, numerous complaints at once came in, and not single complaints from individual users as had happened in distemper. Here there was thus no evidence that toxic batches of prophylactic had been sent out; nor, so far as the evidence showed, did the complaints of failure of immunity at a later date focus attention on particular batches of prophylactic as being deficient.

One great service that Dr. Laidlaw and Major Dunkin would have done, was to define one clear entity; out of the chaos of distemper they had picked out one clear disease, and that would simplify the pathology a good deal. His own anticipation was that within the near future they would have a much clearer idea of the pure *B. bronçhisepticus* disease, the pure hæmolytic disease and the pure virus disease as worked out by Laidlaw and Dunkin.

### The Reply.

Major T. Dalling, in reply, said that he was very pleased that the little paper he had prepared for that night had given rise to such an amount of discussion, and that he was very greatly obliged to Dr. Laidlaw and Dr. O'Brien for having replied for him to most of the points raised.

As he said in his paper, they followed, as far as they could, the instructions laid down by Laidlaw and Dunkin, and anything they advised was usually culled from instructions they issued or from conversations they had had in the past with them. Most of their experience had been culled from veterinary surgeons who had used the material, and as time went on they would have more and more information from the clinical aspect.

To him, the whole question of distemper to-day was one of nomenclature. There was a group of diseases in dogs which had in the past been called distemper. Whether those diseases were all due to the infection with the specific virus as described by Laidlaw and Dunkin or not was a point on which no one at the moment could venture to voice an opinion. It was conceivable that every one of those diseases originated from infection with the virus and that those secondary invaders came along and gave rise to various symptoms, and so they got the huge group of diseases called distemper. His own opinion was that other organisms might give rise to diseases which the dog owner and the veterinary surgeon called distemper and which were not due to the virus of distemper. That case of their own—that breakdown they had—where those dogs in isolation developed a disease which everyone would call distemper, and from which they could not isolate distemper virus in any way, left him with the impression that the hæmolytic streptococcus, at least, could cause a train of symptoms which anyone would be forgiven for calling distemper. One got carcases for *post-mortem* examination—carcases of immunised dogs which had suffered from a train of symptoms called distemper; one searched for distemper in the various tissues; one took material from these tissues and inoculated it into a susceptible animal like the ferret; the ferrets did not go down: were they, or were they not justified in saying that the dogs never had been infected with distemper virus? All those dogs which developed the symptoms of distemper, and from which they could not get the virus, were *post-mortemed* in all stages of the disease and from these they could not isolate the distemper virus, but they isolated in practically every case the hæmolytic streptococcus.

One point to which he wanted to refer was one that Dr. Wooldridge brought out, when he asked him if he thought that development of an immunity for virus made an animal more resistant to subsequent infection with other organisms. In his opinion, "No;" they had proved it was not so on at least two occasions.

He was very pleased to hear Dr. Laidlaw bring up the question of transmitted maternal immunity. He had a strong suspicion that bitches which were immune to distemper must transmit in their milk to their puppies a certain amount of antibody, and the puppy, when it left its mother and for some short time afterwards, had circulating antibody which might counteract any effect that the virus, or probably in some cases the vaccine, would have in the production of more antibody, and so the dog would not be left in the immune state.

But he thought the outcome of that discussion was that there was still a large amount of research work to be done before they could elucidate many of the points that had been raised that night. The only thing he would say before finishing was that he would like to appeal to the Fellows of the Society, and to all veterinary surgeons in general, to let them have as many carcasses, or if possible living dogs suffering from distemper, as it was convenient for them to forward, in order that they might get at some of those problems and so solve one or more of the many points which had been raised that night.

## Slippery Roads.

The National Horse Association have issued the second of their Slippery Road Committee's reports. This contains an account of the Committee's activities during the last two years, in which members have toured the country inspecting and approving road surfaces and visiting county and local surveyors, and the report should be of interest to all who view with concern the present slippery condition of the roads.

It appears that a certain amount of improvement has been effected in many counties and it is to be hoped that the active operations of the committee will ensure that all roads may soon be non-slippery and safe—not only for horses and cattle, but also for motorists.

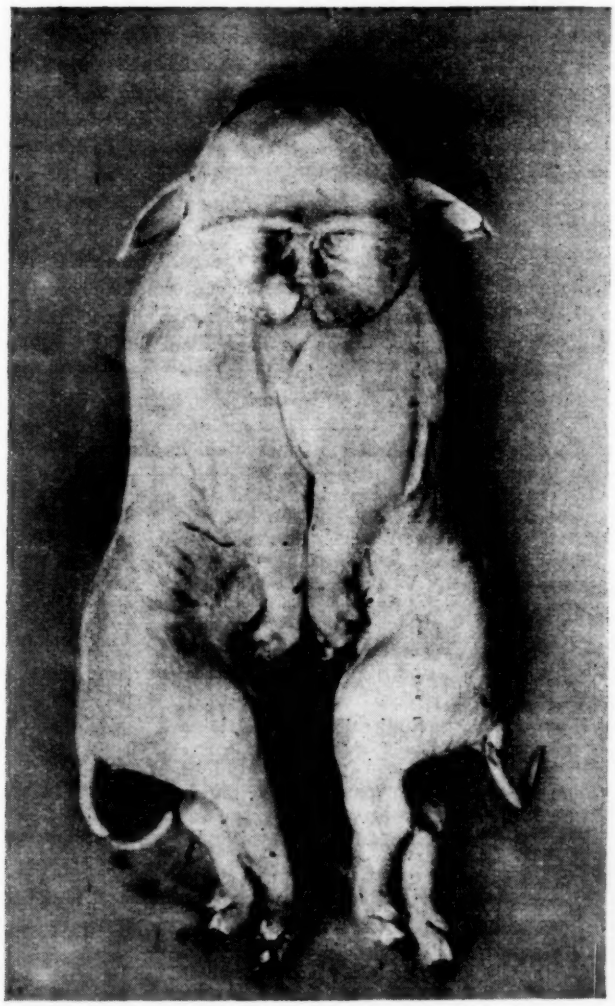
The report indicates that some of the causes of slipperiness are probably due to surface dressing materials containing unsuitable bituminous matter, unsuitable gluxing oil, or to the use of too small-sized grit for binding. Reference is also made to the use of asphalt, tarmacadam or bituminous macadam, concrete and grouted roads. The Committee recommend that the camber in roads should not exceed 1 in 40.

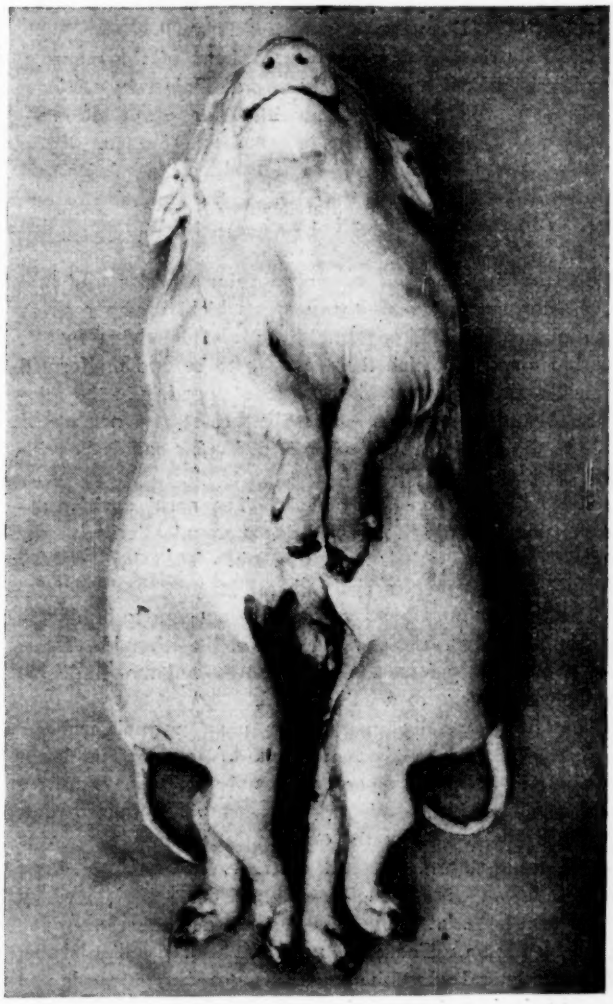
# Clinical Report.

## A "Double-Monster" Pig.

By W. L. Little, f.r.c.v.s., Reading.

[The photographs reproduced below are two of three exhibited by Capt. Little at a meeting of the Royal Counties Division, N.V.M.A., held at Reading on February 7th, 1930. On that occasion the exhibitor announced that he withheld description of the case, as he proposed to forward particulars to us for publication.—Ed.]





The client who forwarded the specimen on September 13th, 1929, states that "they were born alive—one half ceasing to move before the other."

The weight was 2 lbs.—a little below normal for two pigs.

Both were females and were united above the umbilicus, which was single.

Below the umbilicus both appeared normal, each had two rows of mammæ.

There was one face, one pair of eyes, one pair of nostrils, one mouth and tongue.

An extra pair of ears was placed at the back of the poll, but did not appear to have a meatus.

There were two pairs of fore-legs and two pairs of hind legs; all digits appeared normal.

In each abdomen below the umbilicus were the bowels; above the umbilicus was one large stomach, which had the appearance of two being fused together, it had one inlet and one outlet and was placed between two livers, one of which was very large, the diaphragm was not complete, allowing small portions of the liver to enter the thoracic cavity at the four corners.

The duodenum and jejunum were single and placed in the right-hand pig; about where the ileum joins the jejunum the gut bifurcated—one piece passing into each abdomen—and was complete to the anus.

There were two pairs of kidneys, each in the normal position.

Each half had a bladder, which was dragged upwards to the umbilicus by a short ligament. Each half had a complete uterus and ovaries. The pancreas was single and large.

The spleen was single, rather large, and had the appearance of two joined at right angles.

The position of the stomach and livers was in accord with the head and not the vertebral columns.

The thoracic cavity was large and common to both halves.

It was bounded on the front and back by the two sternums; the sides were formed of the vertebral columns, the ribs completing the boundary, the right ribs of one half and left ribs of the other joined to each sternum.

There was one larynx and trachea; the latter bifurcated, going to two pairs of lungs, the position of which was in accord with the head, stomach and livers, so that each pig had one lung of each pair of lungs.

Between each pair of lungs was a heart, these were united by a large vessel from which arose the aorta.

The vertebral columns appeared complete as far as the occiput, and the cervical portion enclosed the trachea, etc., on each side.

. . . . . .

### Detailed Report on Head.

The following is a report on the head of the monster, furnished by Professor C. M. West, of University College, Cardiff, to whom it was submitted for examination:—

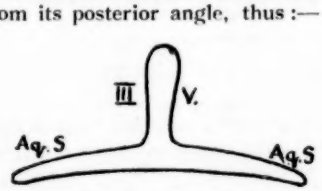
*External appearance.*—The face and anterior part of the head are normal with two lateral auricles in their normal position. Two additional auricles are situated close to one another in the occipital region each just to the lateral side of the middle line.

*Internal Structure.*—The two posterior auricles lead into a common external auditory meatus which, in time, opens into a single wide, epithelial-lined and blind cavity, at the inner end of which there appear to be two malformed mallei, and two incus which are fused together in the mid-line. There does not appear to be any stapes, nor was I able to discover any cochlea or semicircular canals in relation to these ears.

The palate is completely cleft. The nasal cavities extend a long way back and are in communication with the mouth throughout their entire length. They lead respectively into a single pharynx and larynx.

The cartilaginous base of the skull appears to be double as far forwards as the posteria edge of the ethmoid. There are two pituitary fossae. The foramen magnum is double and gives passage to a spinal cord.

The two normally placed ears have normal cochlear and semicircular canals in relation to them. The brain is single in its anterior part and double posteriorly. There is a single cerebral hemisphere on each side joined to that of the opposite side by the Corpus Callosum. It contains an apparently normal lateral ventricle. There is a single optic chiasma with a single optic trail on each side, which leads to a large lateral germinate body and superior corpus quadrigeminum. The third ventricle is of peculiar shape, having a lateral wing-like expansion growing outwards and backwards from its posterior angle, thus:—




These lateral wings are in reality the two cerebral aqueducts of Sylvius, leading down to the paired 4th ventricles. It is interesting to note that those parts derived from the fore-brain vesicle are normal, while the duplicity has affected the mid and hind brain segments. There are two mid-brains, with an apparent fusion of the adjacent superior corpora quadrigemum, so that the lateral pair of these bodies are prominent, while the medial pair are not recognisable as such. On the ventral aspect of the brain there is the single optic chiasma, and two pituitary glands; the floor of the 3rd ventricle behind this is extremely thick, and is evidently formed by the fusion of the two adjacent central peduncles. The ventral surface of the mid-brain is composed of the two central peduncles on each side, the lateral arc in each case being well defined and the medial ones being fused together to form the thick ventricular floor already referred to. The pons is double, but is not well developed on its medial side. The cerebellum is double. The adjacent halves of the cerebellum are suppressed in development and are fused with one another. They are placed, as is the whole hind-brain, at an angle to the mid-line, so that their surfaces do not look anteriorly and posteriorily, but much more inwards and outwards respectively. There appear to be seventh, eighth, and ninth nerves arising only from the lateral half of each cerebellum. There seems to be only one-sixth nerve on each side. As far as I am able to make out, there appear to be two hypoglossal nerves from each cerebellum, but I have been unable to trace them forwards.

Professor West concluded with an expression of his regret "that this is not a more satisfactory and detailed report" . . . . "The reason is, that I did not realise until the other day, that a report was required at all and I thought the specimen had been sent to me for its interest and for remarks when I had an opportunity to examine it."

## H.M. Stationery Office Publications.

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

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| Psittacosis (Memo. 151/Med.) February, 1930. (33-9999-00-00) ... ... ... | 0 1 | 0 1½ |
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| Veterinary Inspector. Pamphlet containing the Question Papers of an examination held in November, 1929. (25-0022-00-29) | 1 6 | 1 7 |

## Army Veterinary Service.

### Movement of Officers.

Major R. A. Gooderidge, O.B.E., sailed for India on March 1st, for a full tour of duty abroad.

# Review.

## The Journal of the Royal Army Veterinary Corps.

If the first issue of the *Journal* was pronounced good, the second, which was published early in February, may be regarded as excellent, for it is full of useful and interesting matter. As stated in its own editorial, there seems ample justification for saying that the *Journal* has come to stay. A healthy sign is the number of annual subscribers who, quarter by quarter, are shown as having enrolled, not only from those who have served in the Regular R.A.V.C. but from amongst those officers who are now in civil employment, but with a record of service during the war and in Territorial service. It is felt that with this strong support all round, the success of the *Journal* will be assured.

Amongst the supporters it is pleasing to note the name of Dr. Griffith Evans who, at the advanced age of 95 years, is indeed the father of the profession. The Veterinary Service of the Army is full of scientific and historical experience which has never been properly recorded. There ought, therefore, to be no lack of material. "When" to this are added present-day social items, notes from various Institutions and Commands, and the lighter though pleasing turns from minor poets, the whole becomes more enjoyable. Sergt. E. R. Gregory's poem "When" is of real merit in this respect. Of the more scientific material there are practical articles on "Feeding Arrangements in Class I Veterinary Hospitals in India," by Major C. Davenport. "Observations on Ringbone," by Lt.-Col. J. W. Rainey; "Remarks on Genetics," by Major T. F. Arnold; and Sir Ralph Jackson contributes a "Note on the Regulations governing the Importation of Dogs and Cats into Great Britain." Good clinical articles are recorded by Major Glyn Lloyd, by the late Captain J. P. Hegarty, Major L. Daniels and Major J. R. Hodgins. The article by Major-General Sir John Moore entitled "In the Beginning" is continued from last issue and a disposition of the Veterinary Officers who mobilised with the Expeditionary Force in 1914 is given. Colonel W. A. Pallin relates his experience with the Boxer Rising in China in 1900-1901, and "My Best Horse" in this issue is "Foxy Lad," owned and ridden by Major C. H. S. Townsend. Perhaps the most interesting item of news is contained in the remarks of Lieutenant-General Sir Webb Gillman, the Master General of Ordnance to the cadets of the Royal Military Academy, Woolwich, where he stated that only four out of 28 Field Artillery Brigades were in process of being mechanised and that in the next ten years he did not think there would be enough money to mechanise any others.

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The fields of human medicine and veterinary medicine have long passed the point where they are little concerned with each other—the maintenance of human health and the preservation of human life are coming to have more and more to do with the science of animal medicine.—J. R. Mohler.

# Neglect of Veterinary Science.

In a recent issue of *The Times*, the Agricultural Correspondent of that paper states:—

"The neglect of veterinary research and experimentation cropped up in various discussions recently, and the evidence that accumulates to emphasise the serious state of things and the urgency of the need for attention is convincing and alarming. The whole question requires immediate and resolute consideration. The losses suffered by stock-owners on account of diseases and minor ailments among their animals, believed to be preventible or remediable, are great, and can ill be borne, yet they have to be endured for the reason that no adequate provisions are made for veterinary research and the treatment of the scourges. The fact that the Royal Veterinary College, London, is in a state of neglect is typical of the attitude of the nation towards veterinary science, and of the failure of the responsible authorities to form a proper perspective of the educational requirements of the agricultural industry.

"Renewed reference to this subject is warranted by the manner in which it was emphasised at recent meetings of representative bodies. The health of live stock and its importance to the prosperity of farming have been emphasised successively by the National Farmers' Union, the Royal Agricultural Society, and the Council of Agriculture, and the understanding with which the case for increased research has been presented can leave no possible doubt regarding the need for urgent and serious action. Sir Arthur Hazlerigg, at the Council of Agriculture meeting, was at once moderate and arresting in his statement of the case. It is not a good time, all are agreed, to present an appeal for increased expenditure. But Sir Arthur did not put forward an unqualified demand for augmented disbursements.

"He was content to state the very grave nature of the case, giving reasonable emphasis to its bearing upon the industry, and to suggest that, if additional expenditure could not be made at present, the use to be made of the money available might be varied in proportion to the relative merits of the pressing needs. He pointed out that the Ministry of Agriculture was arranging, at considerable cost, to increase the number of agricultural organisers in the counties. Without seeking in any way to depreciate this movement, he hinted that the money to be expended in this way would be more effective of result if it were diverted to the study of animal disease and the training of veterinary surgeons.

"The suggestion was reasonable and showed a fitting appreciation of the more urgent needs. Far from discouraging or hampering educational work, greater concentration upon veterinary science would tend definitely to facilitate it and make it additionally effective. It is a superficial view of the position to argue that the proposed diversion of money from county work to scientific research is detrimental to education. On the contrary, research and experimentation are the sources whence true education or learning springs. In the practical work of the farm the occupiers as a body will learn little from, and may easily be led on to wrong lines by, advice from outside. Organisers or teachers will be most effective when they have something of real value to teach, and without scientific research, especially in regard to so mysterious and elusive a question as animal diseases, there is not a great deal that can usefully be brought to the notice or the help of the farmers. Live stock is emphatically the supreme interest of the industry, and it is suggestive of waste to proceed with superficial systems of education if the basic or fundamental elements in the problems tackled be disregarded. No great good can come of any scheme that provides the teachers and fails to fit them for disseminating knowledge competent to redress the ills encountered. The relationship of research and teaching is more intelligently exemplified in matters concerning soils and plants; it is difficult to understand why it should be ignored in the equally vital and even more important case of animal husbandry."

# Divisional Reports.

## Royal Counties Division, N.V.M.A.

### Annual General Meeting at Reading.

Despite the receipt of a " record " number of apologies for absence, success attended the Annual General Meeting of this Division, which was held at the Great Western Hotel, Reading, on Friday, February 7th, 1930.

The President (Major A. C. Duncan) occupied the chair, and there were also present Messrs. J. R. Baxter, A. J. Beeson, R. E. C. Bullen, Capt. H. B. Collet, Messrs. J. A. Craft, C. H. Ducksbury, A. V. Franklin, E. J. Heather, Major W. H. Kirk, Capt. W. L. Little, Mr. J. W. McIntosh, Mr. G. P. Male, Major E. E. Seldon, Lt.-Col. P. J. Simpson, Major F. J. Taylor, Colonel G. K. Walker, Mr. A. E. Ward, Mr. R. A. Willett, Capt. E. C. Winter and Mr. H. Bell, *Hon. Secretary.*

The minutes of the last Annual General Meeting, which had been published in the *Veterinary Record,* were taken as read and were confirmed and signed.

The second item on the agenda was the reading of the rules, if required, and under this head, Captain Little said that some time ago a committee was formed to revise them, since when they had heard nothing about the matter.

The President said that if it was the wish of the meeting they could have the rules read out, and then if anyone desired that any alteration should be made they could re-appoint that committee.

The members intimated that they desired to dispense with the reading of the rules, and the matter of their revision was remitted to the Council.

Correspondence.

1.—From the following gentlemen, apologising for their inability to attend the meeting: Mr. J. H. L. Addis, Capt. A. Barr, Mr. W. J. Carless, Major R. Catmur, Mr. A. C. Dixon, Major G. W. Dunkin, Major J. J. Dunlop, Messrs. C. Elphicke, E. J. Gill, R. E. Glover, Professor F. T. G. Hobday, Capt. T. M. C. Hunt, Mr. C. P. Inglis, Major H. G. Lepper, Mr. T. W. Lepper, Mr. P. Lloyd, Major-General Sir John Moore, Vetr.-Major G. Rees-Mogg, Mr. H. L. Roberts, Mr. S. H. Slocock, Major S. L. Slocock, Lt.-Col. P. W. Dayer Smith, Capt. W. K. Townson, Mr. F. T. Trewin, Major R. F. Wall and Mr. A. E. Wood.

2.—From Major E. E. Seldon, withdrawing his resignation from membership. This letter was received with applause, and the President said they could congratulate themselves on retaining Major Seldon, whom he hoped would remain a member at least long enough to occupy the Presidential chair, for he was a very valued member of long standing. (Hear, hear.)

3.—From the Secretary of the Eleventh International Veterinary Congress, acknowledging the receipt of delegates' fees.

4.—From the Secretary of the Victoria Veterinary Benevolent Fund, acknowledging the receipt of a subscription from the society.

5.—From the Council of the National Horse Association, requesting the Society to renew its subscription, and enclosing the second report of the Slippery Roads Committee.

Mr. Male moved, Major Taylor seconding, that the subscription be renewed, the latter giving some account of the excellent work which the National Horse Association was doing in and around Oxford.

Mr. McIntosh, supporting the motion, said that it was very gratifying to him, as a member of the Council of the National Horse Association, to know that the work of the Association was being appreciated in Major Taylor's district. Activities were proceeding, under the auspices of the Association, throughout the country, and everything was being done to stimulate and encourage the horse owner. There was, too, another body, on the Council of which he served, " The Institute of the Horse," which was doing very useful work of a similar nature. He thought that both those organisations were doing very good work and that the profession should support them in every possible way. (Applause.)

The motion was carried unanimously.

*Auditor's Report and Balance Sheet.*—These revealed the finances of the Division to be in a highly-satisfactory condition, and the Hon. Treasurer (Mr. G. P. Male, President, N.V.M.A.) said that the Society was in a better position, financially, than it had been since its foundation. No thanks were due to the Treasurer for that (" No, no ") but they had had a large increase in membership, which now stood at 88, with two Hon. Associates, and the members had supported them extremely well. During the War they had a very bad time, but they kept their expenses down to the minimum, which enabled them to be in a good position to start after the War, since when things had been going on very well. There were, however, still a few members in arrears, and he would be glad to have their subscriptions. With those few exceptions, he must thank the members very much for so kindly sending him their subscriptions so promptly.

Mr. J. W. McIntosh moved the reception and adoption of the auditor's report and balance sheet, and Mr. J. R. Hewer having seconded the motion, the President said that before they formally passed it he thought they should congratulate themselves and compliment their Treasurer on the way in which their finances had been gradually worked up from very small things to a comfortable station. (Hear, hear.)

The motion was then carried, and the auditor (Mr. J. Willett) was accorded a vote of thanks for his services.

Morbid Specimens and Cases of Interest.

Mr. C. H. Ducksbury said that in view of the Bill for the Humane Slaughter of Animals, he thought they would like to see some of the effects of the humane captive bolt pistol on pig flesh, showing the blood extravasations of which the Trade complained. Two of the specimens were preserved, and one was a fresh specimen which he collected that morning.

Captain W. L. Little exhibited some photographs of a " double-monster " pig. He would not describe it at all, because he hoped that the *Veterinary Record* would be doing so shortly.

*Gland Grafting in Mares.*—Mr. G. P. Male said that a number of members had taken a good deal of interest in the grafting experiments which he had made and of which he had previously given them some account. He

had with him a record of two mares which he had grafted, about which he thought they might like to hear. One was a thoroughbred mare, born in 1919, and she had had two foals—in the years 1923 and 1924—but was barren in 1925, 1926, 1927, and 1928, during which years every effort was made to get her to breed but without success. She was accordingly grafted on March 14th, 1928, the donor of ovaries being a skewbald mare, rising three years, and as a result she was put to Golden Orb and had a very nice chestnut filly foal.

Opponents of that grafting operation had made suggestions that in some way the progeny of a mare that had been grafted would be affected by the ovaries that had been transplanted into the body; how, he did not know, but that was the allegation.

The donor of the graft was a skewbald mare of a half-bred type; the filly foal born was a beautiful chestnut, with all the qualities of the thoroughbred, and there was no sign of the hairy heel at all. That, he thought, discountenanced my suggestion that the ovaries of the donor affected the offspring of the recipient in the matter of the transmission of physical characters.

Another thoroughbred mare had been barren three years and was now heavy in foal. In her case the donor of the grafted ovaries was also a half-bred mare.

He had with him a letter from a dog breeder concerning a bitch which had been grafted for him. This bitch had had three litters of puppies, and had had three heats since, but had bred no more puppies. He (Mr. Male) grafted her in January, 1928, with ovaries from a two-year-old bitch. These took very nicely, and the letter stated that the owner had much pleasure in informing him of the complete success of the operation. She was mated in April, 1929, and looked like having five or six puppies. This animal was a Fox terrier bitch, and had bred a champion.

The President remarked that he had no doubt that all the members would have found the specimens of pigs' muscle very interesting. He personally was very much afraid to say anything about it, because he realised that that pig muscle would raise a discussion which would last from then to eight o'clock, for he had heard on other occasions discussions on the use of various types of humane killers. Nevertheless, he was very glad to have had the opportunity of seeing the specimens.

Mr. F. Willett said that viewing those specimens had reminded him of his visit to Denmark, Sweden and Holland with Major Hobday, when they saw a great many pigs killed with the captive bolt pistol. The condition seen in those specimens was the trouble over there—they saw the splashing of the carcasses which resulted from the use of the captive bolt. He believed there was a great objection to it on that score on the part of the butchers, another objection being that the hams did not cure properly.

Colonel Simpson remarked that those specimens were very opportune, because he saw by that day's paper that the Humane Slaughter of Animals Bill was coming up on the following day for its second reading.

What he would like to know was, supposing they were called upon to give an opinion, were they to condemn meat showing those splashings as unfit for human consumption, or were they to pass it?

Captain W. L. Little asked if Mr. Ducksbury was sure that the splashing was due to the use of the captive bolt; there were other conditions that caused it, such as scurvy in pigs. Were there not sub-periosteal hæmorrhages present? If that were so, it was quite possible that the pigs were affected with scurvy.

Mr. Ducksbury replied that he did not examine the pigs for sub-periosteal hæmorrhages, but in thousands of pigs which he had seen killed in the ordinary way he had never seen a case of splashing.

Mr. Male said that he must congratulate Mr. Ducksbury, who was a new member, on having made a very good start by bringing such interesting specimens to his first meeting. (Hear, hear.)

He would like to ask what was the percentage of splashing in those pigs. In Reading the butchers opposed the proposal to adopt the mechanical killer, and now it was used extensively; was there any difference, in this regard, between the captive bolt and the bullet? Also, if the pigs were stuck immediately, would that help to avoid the splashing?

Mr. Ducksbury said that in the case of the free bullet the thing against it was that it occasionally went down the shoulder and made a very bad fore-quarter. He thought about 50 per cent. of the pigs they shot showed splashing in some degree or other, if the condition was very carefully looked for.

A Member said that he thought that ruled out scurvy.

Mr. F. Willett stated that Mr. Ducksbury's last remarks coincided with his experience; he saw a great number of carcasses of shot pigs in the countries he visited, and in about half of them the splashing was observable.

Mr. Ducksbury proceeded to say that he thought that most of the meat that was found by the meat trade to be splashed was not submitted to inspection; it was usually used in a chopped-up form for other goods, such as brawn. He did not think there had yet been any ruling on the point raised as to the inspector's duty in the matter, but he rather thought that the housewife would refuse to buy meat in such a condition.

Colonel Simpson said that the point was whether or not the splashing affected the keeping qualities of the meat; if it did, it should not be sold.

Captain Little remarked that that was the vital point. He had an idea that meat in that condition would not keep fresh as long as meat killed in the ordinary way.

Colonel G. K. Walker said that a very definite statement had been made that those extravasations were caused by the captive bolt, and that was a very serious matter. What worried him was the question, what was the actual cause of those extravasations? Their presence, if it did nothing else, did detract from the value of the meat, and if a definite statement was to be made that the captive bolt caused them, and they supported that statement with evidence, they had better see that they were in a position to say that the captive bolt was not to be recommended. What was the cause? Was it a case for pathological investigation? As they had been assured that the pigs were stuck immediately afterwards, he could not think of a reason for the extravasations.

Major F. J. Taylor asserted that use of the captive bolt checked the bleeding process.

Mr. J. A. Craft said that it was a well-known fact that no meat would take salt if the animal was destroyed when suffering from any acute disease. The meat from an

animal upon which the captive bolt was used would not take salt, and that brought it within the same category as meat from a diseased carcass, and, if that was the case, it should not be used for human consumption. They found that not only the hams, but the whole carcase, failed to keep, but that was not found with the humane destroyer.

The PRESIDENT said that he remembered, about a year ago, attending a meeting of the Sanitary Congress, when there was a paper read by someone who was advocating the captive bolt. On that occasion there were very strong opinions expressed on both sides by people whose views were much respected by those present. Mr. De Vine of Birmingham was very strongly against the captive bolt. He (the President) sympathised with everybody, because nobody seemed to be very clear about what was actually happening. Colonel Walker wanted to know what was going on inside, and so did he. Their little town had recently before it the question of the compulsory adoption of the so-called humane method of killing. The three bacon factories in the town had strongly opposed it, and so it had been passed for cattle but not for pigs. Why should that be? He did not know.

Mr. F. WILLETT stated that that raised an important point for the country practitioner; if he was asked to give an opinion, how did he stand if he condemned the meat? It was fit for human consumption, yet its keeping qualities might be affected.

Mr. R. A. WILLETT asked if that meat, if it were exhibited for sale, would not come under the clause in the meat regulations which stated that meat could not be exposed for sale if it were not of the substance and quality demanded by the consumer. That was the case with flukey livers.

The PRESIDENT thought that that covered a multitude of sins; there was no doubt that a great deal of the meat that was condemned would do nobody any harm, but it was not of the substance and quality demanded by the consumer.

Mr. R. A. WILLETT asked Mr. Male whether, in those cases of barren mares and cows, they failed to come into œstrum, or, coming into œstrum, they failed to conceive.

Mr. MALE replied that in some of the bitches he had operated on, the bitch had not come into œstrum at all; in other cases she had come into œstrum, but not a normal œstrum; in others she had been apparently normal in œstrum but she had not bred. In mares one had the same sort of thing, also in cows there was no rule about it.

Mr. J. A. CRAFT related that he recently grafted a couple of Guernseys, with a section out of a shorthorn ovary, into the brisket. Both of those animals got in calf, though he had previously tried, without success, every method he knew. They were seven months gone; one was carrying a mummy from about the fourth month, and the other was in calf with a live calf. What was he to expect with the latter—a hiding from the owner (Laughter) or would it turn out to be pure Guernsey?

Mr. MALE: Pure Guernsey, it cannot be anything else.

*Exhibit.*—Captain H. B. COLLET now rose to say:—

"As a good deal of my work has to be done single-handed, some months ago I set about making a one-man apparatus for anæsthetising dogs and cats. I had used previously a box with a glass window for cats but had found it unsatisfactory. At a local garage I had made an iron cylinder, about 14 ins. long and 6 ins. in diameter. At one end was inserted an ordinary Schrader tyre valve, and at the other end was a small tap. The whole rested on a stand. To the tyre valve was attached a Dunlop Junior foot pump and the cylinder was pumped full of air. A rubber tube was connected to the tap and led to the chloroform bottle. The ordinary muzzle was used.

"In anæsthetising a cat the method is as follows: The hobbles are placed on the forelegs above the elbow and both hind legs are held firmly at the hocks with the right hand. The air is turned on at the tap and the mask held, with the left hand, over the cat's head. As soon as resistance ceases and anæsthesia is practically attained, the cat is released from the hobbles. Anæsthesia will then be completed. If at any time the pressure of air diminishes, a few strokes of the pump are sufficient to bring it up again. I have found this apparatus very satisfactory and have on several occasions, using the flank method, spayed cats without assistance.

"With the cylinder just described I found that, from time to time, leaks used to develop along the welding and this made more frequent use of the pump necessary. The cylinder now exhibited is about 12 ins. in height and 6 ins. in diameter and was formerly a fire extinguisher. I found it in a scrap-iron merchant's yard and purchased it for one shilling. A fire extinguisher of this type is made to withstand a pressure of 350 lbs. to the square inch, so that a very considerable quantity of air can be forced into it. The cap on the top of this cylinder (used for refilling when a fire extinguisher) has been well screwed down and made quite air tight. There was an outlet tap in this cylinder when purchased and a Schrader valve has been inserted. You will notice that when the tap is turned on air still escapes, although the cylinder was filled yesterday and the tap has been turned on several times since."

The President expressed the gratitude of the members to those who had brought forward specimens and exhibits and related interesting cases.

*Next Meeting.*—It was decided to hold the April meeting of the Division at Swindon.

### THE WEST OF SCOTLAND SCHEME FOR THE ERADICATION OF BOVINE TUBERCULOSIS.

The next business on the agenda was the discussion of the above scheme, and in bringing this matter to the notice of members, the PRESIDENT said that, as they knew, the scheme had been discussed by a great many divisions; perhaps someone would open the discussion by making some remarks about the scheme.

Major HAMILTON KIRK said that bovine tuberculosis did not enter into his practice at all and he was not in any way interested in it except from a public health point of view—that of clean milk. That subject had been discussed all over the country and they were having voluminous reports sent to the *Veterinary Record* week by week, all bearing on the same thing, and it was thought by the Central Veterinary Society that the best thing to do would be to appoint a committee of men who understood the question (a committee of the N.V.M.A.) and let that one committee discuss it for the whole country. It appeared to him to be futile to have the same thing thrashed out in every corner of the country; they would never come to any decision on those lines.

Captain Little said that he did not think it was necessary for them to come to any decision; the West of Scotland Division had asked them to discuss the scheme.

Mr. Male said he thought that the idea was that the scheme should first of all be discussed by the Divisions of the Scottish Branch and their opinions sent to the Scottish Branch who, from these opinions, would formulate a scheme to be sent to the National. Then it was decided to send the scheme to every division in England and Wales for their comments, so that eventually a revised scheme could be forwarded to the N.V.M.A. to be worked out and presented as the accepted scheme of the veterinary profession in this country.

The President said that that was undoubtedly what the Scottish Branch had in mind, but from what one had seen from reports in the *Veterinary Record,* some Societies had simply said that they supported the scheme, and one at least—if not more—had simply let it drop and said they did not support it. We quite agreed with the latter. It struck him as being very much like a meeting to discuss what they were going to do with the first prize in the Calcutta Sweep which they hoped to win at some future time. (Laughter.) Here was a scheme which would cost an enormous amount of money, which the government had not the slightest intention of giving them, but which they hoped would be put into operation.

Mr. R. A. Willett moved the following resolution for forwarding to the Scottish Branch: "That this Division is in sympathy with the object of the scheme, but has no specific suggestions to offer."

Major Kirk seconded.

Mr. Male said that before that resolution was put to the meeting he desired to say that there were points in the scheme with which some of them might not agree and he thought it would help the West of Scotland Division, the Scottish Branch, and the N.V.M.A., if they took the scheme point by point and discussed each one, making amendments as they thought necessary.

The President having asked what was the use of discussing the scheme seriously when there was no money to carry it out,

Mr. Male replied that he agreed with him that the crux of the whole problem was finance, but he also thought it might be tried in certain areas as an experiment, which, if successful, could be extended over the country.

Captain Little said that he did not think that anybody wished to start any scheme of eradication straight away which should cover the whole country and cost millions of money, but he did think the time was quite ripe for something to be done to put our herds in order. Very little was being done by the owners of large numbers of herds to combat tuberculosis. They must be educated, and if that was done for a few years and then the Orders we already had were enforced rigidly these measures would tend to reduce tuberculosis, and when they came to eradicate it, instead of costing us two or three millions it might only cost us one.

Major Taylor said that, to take a general view of the whole situation, from a practitioner's standpoint it often occurred to him what different attitudes were adopted by the various parties concerned. First of all there was the apathetic attitude of the owner of the dairy cow, who was waiting for compensation for any losses he might have to face. Then, the attitude of the wholesale milk vendor was simply one of obtaining so-called milk from whatever source he could; he did not care what kind of an article it was so long as he could pasteurise it and it would keep when it came into the hands of the consumer. Then again, and this was for them the most important attitude, there was that of the veterinary profession with regard to testing. Another attitude was that of the Ministry of Agriculture, and in the present state of agriculture, which could not be worse, the Ministry would certainly fail to see their way to spend a large sum of money on a huge scheme like that. Finally, there was the attitude of the milk consumer; he was more apathetic than the whole lot of them. Any scheme would have to be applied very gradually if a meat and a milk famine were to be avoided.

At this point it was proposed by Mr. Craft, and seconded by Mr. Male, as an amendment, "That this Division is in sympathy with the general principle of the West of Scotland Division Scheme for the Eradication of Bovine Tuberculosis."

This amendment having been carried by a large majority, the President said: "There is no need to put that as a substantive motion, because the first motion practically falls to the ground."

*Any other Business.*—Under this heading, Colonel Walker, to the very great pleasure of the members, reported that Major Robin Catmur (the former Hon. Secretary) was considerably improved in health, and that he was quite hopeful that Major Catmur would be seen at these meetings very soon. The meeting warmly approved the President's suggestion that, as they did last year, they should send him a note, on this occasion, saying how delighted they all were to hear that he was better.

### President's Address.

The President (Major A. C. Duncan) now delivered his address from the chair, as follows:—

I must first express my thanks to you for the compliment which you have paid to me in electing me as your President for the coming year. I appreciate it very much and shall do my best to carry out the duties. I hope that time will not prove that your kindness of heart is more to be commended than your wisdom in making the choice.

My next remark is intended, not so much for you who are present to-day as for those who are still outside our membership, or who might attend and do not.

As the B.B.C. have not offered to us the facilities of their organisation for the enlargement of my audience, I must rely on the *Veterinary Record* to broadcast this note to all who are not present. To them let me say—My good friends, you are missing something which I honestly believe to be of value, and not dear at the price of the annual subscription (you waste much more on things which are of little account), and of the effort necessary to attend once a quarter.

Many of you served in the Great War; did you not learn then, what I certainly learned, that of the multitude of new people with whom I met and with whom I lived in daily contact, so very few were rotters? Those whom I had thought so turned out to be very decent fellows when one got to know them.

Can we not carry that experience into civil life? I am certain that here again you will find that the man whom

you always looked on as an outsider was not such a bad fellow when you got to know him. Even though you may consider him a bit of an ass at times, after all, when you meet him he is a genial sort of ass.

Still in this connection, I have at times been shocked to find how far I have been left behind in the advance of knowledge. I cannot think that I am different from my fellows in this respect; in fact, I think that the man who does not realise that he is dropping behind is in a more serious condition than most of us; he is surely suffering from paralysis of his mental self-consciousness, and as a first treatment for that condition, I should suggest that those so affected should at once write a short thesis on, say, skin diseases, and read it at one of our meetings.

I am sure that one of the best ways by which the practitioner can keep up his knowledge is by attendance at meetings of these Societies, where by discussion and sometimes by demonstrations or even by casual conversation, some little advance is made each time we attend.

Now my listener or reader, I want you as a fellow member, and you want us. I know well that it is a long way to the meeting, and you may be late home, but for once in a way your wife will not mind you coming in late if you don't make a practice of it at other times, and a change of scene and companionship will do you good.

Unlike the speaker in the week's good cause, I shall not repeat the address; you will find it on page 373 of the register. Write to the Secretary and say you wish to come to our next meeting to see how you like it.

My next remark has reference to a different matter. You are all well aware that the London Veterinary College is badly in need of repair or even rebuilding and great efforts are being made to raise the necessary funds for that purpose. To-day I am not collecting, but a point of view occurs to me which I think it would be well to keep before us while the schemes for the future are maturing.

To some the matter may to a certain extent appear to be a parochial one. The London College needs funds; that is a matter, they might say, which concerns London and the South of England, this College being one of several. I am sure that there is something more in it than that; apart from the fact that the influence of this particular institution is world-wide, it seems possible that the reconstruction of this institution may have an important influence on the future training of veterinary surgeons everywhere.

One evening I heard a speaker alluding to the rebuilding of Charing Cross bridge, saying, "It is so necessary, when the accomplishment of the project is almost in sight, that the authorities should make quite certain that the alterations should be the best possible. This structure will make or mar London for a century," and he added, "We are building not for ourselves but for posterity."

It struck me that the words applied with even greater force to the Royal Veterinary College, for, as I have already said, it seems possible that in the course of rebuilding the authorities might take a forward step during reconstruction which would have its effect on the lives of the coming race of veterinary surgeons for at least a century.

There may be, indeed there must be, differences of opinion, but no personal consideration or false sentiment should prevent the coming race from having the fullest measure of advance should opportunity offer.

Having said something for the advantage of ourselves, who live and work in the present, and secondly something on behalf of the future generation, will you bear with me for a few moments longer while I add a word concerning the past, and for those members of the profession who through age, sickness, or other misfortune are no longer able to maintain themselves or their dependants in comfort.

Some few of us are in circumstances of comparative affluence; fewer still are nearly to be considered as rich, but a considerable number of our members are in a position which reminds us of an incident in one of Lewis Carroll's immortal writings; you may possibly remember the incident to which I refer—when Alice had been led by the Red Queen, running as fast as she was able, after a time she noticed that they had not moved from the place from whence they had started. Then the Queen, replying to her question, said, "Here it takes all the running you can do to keep in the same place; if you want to get somewhere, you must run at least twice as fast as that."

So when, after working as hard as we can, we find our bank balance just where it was when the year began, it is difficult to see how provision can be made, under such circumstances, for the time when by reason of old age or infirmity we can no longer work.

Such is the object of the Victoria Veterinary Benevolent Fund; to give a little help to those of our number who cannot help themselves.

The best we can do is but small. As you may see from the last available report, there were about 54 persons being helped by means of grants mostly amounting to about 10s. to 15s. per week, and others had to be refused help because the funds were not forthcoming.

There are approximately 3,500 members on the register, and the number of subscribers to the fund is about 470. Could we not do better than that? If two-thirds of our members subscribed the minimum of 10s. 6d. a year we should be able nearly to double the assistance given. Would it not be worth it if we could allow £1 per week (not an extravagant sum) to the widow of any member who, having worked hard all his life, was unable from one cause or another to make sufficient provision to keep her during widowhood?

I have noticed in reports of other presidential addresses, that when the members had patiently suffered the President to continue to the close of his remarks, one of them rose and proposed a vote of thanks. Should you feel inclined to conform to this custom, may I ask that, instead of the ordinary form, someone who has not hitherto considered the claim of the Benevolent Fund should arise and say that, moved by the touching words of the President, he for one will in future become a subscriber. Then if any others present are in a like case, I am sure that there will be no objection to seconding and supporting the motion *ad infinitum*. (Applause.)

Lieut.-Colonel Simpson said that, as Honorary Secretary of the Victoria Veterinary Benevolent Fund, he should like to have the privilege of proposing a vote of thanks to the President for his address, which was one very much out of

the common. He did trust that the words that had fallen from him with regard to the Fund would sink in wherever there was virgin soil, and that a large accession to the number of subscribers would result. It was really a slur on the profession that the Fund should not have sufficient money to do more than it could do at the moment.

Mr. Craft expressed his willingness to give practical response to the President's appeal on behalf of the Fund, and also seconded the vote of thanks, which was carried with acclamation.

The President having suitably acknowledged the compliment, the proceedings terminated with the according of a vote of thanks to those gentlemen who had brought *post-mortem* specimens and related interesting cases.

The members and visitors subsequently dined together in an informal manner and the only toast, in addition to the Loyal Toast, was that of the "Royal Counties Veterinary Medical Association." This was briefly submitted by Mr. R. E. C. Bullen, who said that he looked back with great pleasure to the day when he joined the Society, and had never had cause to regret the step, which had, indeed, been a source of great pleasure and profit to him. The "Royal Counties" was one of the most live divisions of the "National" and, in their President, with whose name be coupled the toast, they all felt that they were privileged to have a leader of whom they were proud. (Applause.)

The President, responding, said that on behalf of the Society he desired to thank the proposer of the toast very heartily for proposing their own healths, and especially for coupling with it the name of its President. He would confess to them that he had joined three societies and relished his membership of the Royal Counties V.M.A. more than that of the other two. He was, indeed, extremely attached to the Society, and only too pleased to do everything that lay in his power to help it on. (Applause.)

H. Bell, *Hon. Secretary.*

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The twelfth salon des médecins for the exhibition of pictures, sculpture, engravings, and decorative art by medical practitioners, dentists, veterinary surgeons, pharmacists, and their families, will be held at 117, Boulevard St. Germain, Paris, from June 15th to the 24th. Further information can be obtained from the organiser, Dr. Paul Rabier, 84, Rue Lecourbe, Paris XV.—*British Medical Journal.*

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### Leeds and Dairies Inspection.

"The illness of children attending two schools in Leeds last September, after drinking milk supplied by a farm outside the county borough, was one of the reasons given by Mr. W. J. Jeeves, K.C., for the Leeds City Corporation Bill, which was before the Local Legislation Committee of the House of Commons yesterday," says the *Daily Mail* of March 5th.

"Mr. Jeeves said the corporation sought to extend the power regarding the inspection of dairies in case of tuberculosis so as to cover any illness.

"After hearing the contention of Mr. Rowland Harker, K.C., for the West Riding County Council, that the protection of the milk supply was a national question, and the statement of Mr. Rabagliati, chief veterinary officer of West Riding County Council, that the suggested machinery for Leeds would be three times slower than the existing machinery, the committee decided by a majority that a case for the clauses had not been made out, and they were deleted."

## Yorkshire Division, N.V.M.A.*

President's Address at Leeds.

Discussion on the West of Scotland Scheme for the Eradication of Bovine Tuberculosis.

A General Meeting of this Division was held at the Hotel Metropole, Leeds, on Friday, January 31st, 1930, with Mr. F. C. Scott (President) in the Chair. Others present were:—Messrs. A. McCarmick, H. Pollard, J. Clarkson, W. Halstead, E. H. Pratt, W. A. Campbell, J. W. Procter, J. G. Ross, W. Ireland, G. Whitehead, W. Ackroyd, R. S. Smyth, E. F. Hardwick, F. Hallilay, H. M. Holland, S. B. Vine, W. T. McGregor, W. R. McKinna, D. S. Rabagliati and J. A. Dixon.

*Visitors present.*—Dr. A. McPhee, J. McKellar and Dr. Passey (Leeds University).

*Notices of inability to attend* were received from Messrs. Abson, Bowes, Bowman, Bolton, D. Hamilton, McCleery, G. H. Pollock and A. W. Noel Pillers.

The Minutes of the last meeting, having been published, were taken as read, and adopted.

*Obituary.*—Mr. Clarkson said he had a very sorrowful duty to perform, which was to refer to the losses the Society had sustained recently in the deaths of Mr. Carter, of Knaresborough; Mr. Ellison, of Harrogate; and Mr. McKinna, of Huddersfield. Mr. McKinna, with whom he had been most associated, was known perhaps best as a clinician, and they had all benefited by his close observation, his sound opinions, and the freedom with which he would communicate his knowledge to others. He had been closely associated with Mr. McKinna in the administrative side of the profession, and in that he was equally excellent. He was the one who induced Mr. McKinna to submit himself for election to the Council nearly 30 years ago, and if he never did anything else for the profession his claim to its gratitude stood on a very firm foundation. No man had put in better, more honest and more honourable work. Mr. McKinna loved his profession, and worked hard for it, and it was pleasing to know he lived to see the profession at last stepping in the right direction. Mr. Clarkson proposed that votes of condolence be forwarded to Mrs. McKinna and her family, to Miss Carter, of Hanley, and Mrs. Ellison. This was carried by the members standing in silence.

Mr. W. R. McKinna briefly thanked Mr. Clarkson and the members for their sympathy.

Cancer Research.

Dr. R. D. Passey (University of Leeds Cancer Research Laboratory) addressed the meeting. He said that cancer research, like all other subjects of research, tended to have fashions in the lines taken up at any particular time. When he first came to Leeds, three years ago, efforts were being directed to trying to find an effective basis for cancer, but interest in that side of it was now lacking, and at the last Cancer Congress in London attention was focussed mainly on radium treatment. The medical world was beginning to awaken to the fact that radium was very much more efficient in treating cancer than had been thought possible. Soon after radium was

* Received on the 17th February, 1930.

discovered it was hoped it would be useful in the treatment of cancer, but through lack of knowledge in using it it fell into a certain amount of disrepute. However, people throughout the world had been working steadily at it, and the evidence produced at the Cancer Congress definitely seemed to show that radium was making a real mark as a method of treatment.

Dr. Passey gave a short résumé of the work that was being carried on by his department, and said they were anxious to have material from veterinary surgeons with which to try results; it was hoped to appoint a part-time veterinary surgeon to their staff, so that the profession would be in direct touch with the work. He gave details of how the work between members of the veterinary profession and his department would be carried out, and appealed to the members to get in touch with his department when patients with any malignant disease came to their notice.

Dr. Passey then answered several questions.

The Chairman said it had been a great pleasure to have Dr. Passey with them, but as the matter was not on the agenda he felt they had not been able to give it the time they would have liked. He hoped, next time they saw Dr. Passey, there would be a full-dress debate and that something valuable would come of it. He appealed to everyone to do what they could to send material. It was an opportunity for the profession to help in the wider subject of medicine.

Dr. Passey thanked the meeting for the hearing they had given him.

*Resignation.*—A letter was read from Mr. Gentle, of Otley, resigning his membership of the Division. The resignation was accepted, with regret.

*Election.*—Mr. E. F. Hardwick was elected a member of the Division, on the proposition of Mr. Proctor, seconded by Mr Clarkson.

*Nominations.*—Mr. J. McKellar was nominated as a member by Mr. Smyth, and Mr. J. B. McKinna by Mr. Clarkson.

### Presidential Address.

Mr. Scott now delivered his Address from the Chair, as follows:—

I wish to thank you at the outset for my re-election to the Chair of this Division. But for the unfortunate resignation of the Secretary during the past year, some other member would have occupied the position. We have been fortunate, however, in being able to get Mr. Sharp to take on the secretaryship. The Secretary can be the mainspring of an association such as this, and being a permanent official and the mouth-piece of the association outside, to a great extent the association is judged by him. When Mr. Pollard was President he told us what a sinecure that position was, because the Secretary carried on the association. That was a splendid tribute to the then Secretary, and I feel sure that the same will be said again of our new Secretary

I would like to express my appreciation to all members who have endeavoured to further the interests of this aassociation during the past year. With the support I have had during that time, there has been little room for feelings of anxiety.

It is usual at this meeting for the President to review current veterinary topics, but as the discussion we are to have this afternoon is an important one, and worthy of all the time we can spare, I will only enter into some of those topics very lightly.

Veterinary education, both as concerns the curriculum and the condition of the London College, have been well ventilated in our Press.

Veterinary research and appointments have also been well before us during the past year.

The International Veterinary Congress which is to take place shortly should receive our utmost support. Modern affairs are becoming more and more international in scope, and we in our veterinary vocation have a chance to help in a world-wide understanding.

It is noticeable in our own country that information now-a-days becomes more generally available. The results of research in animal diseases become available as readily to the agriculturist as to the veterinarian. This is not to be regretted, as it is a spur to the veterinarian to keep abreast with the times, and also shews the agriculturist that some mysteries, at any rate, have a solution; his futher outlook on losses is not one of inevitability, but one of hope and endeavour, often in co-operation with his veterinary adviser.

Another topic before us at present is distemper immunity. After a lapse of time a wider trial of the Mill Hill product has been made, and it is comforting, after hearing adverse reports, to have the makers' assurance that investigation of alleged breakdowns in nearly all cases shews some other factor, either in technique or infection, at work.

The anomalous position of the Grade A milk producer trying to become Grade A (TT), deserves our consideration, although it is questionable whether the veterinary profession ought to be the prime movers in milk grading.

The subject which is to follow is occupying much attention at the present moment, and I will not delay in giving place for that discussion.

May I again thank you all for your kindly support during the past year and ask you to do what you can to make the coming year a success for the association. If any member has a suggestion to make as to how the meetings may be increased in interest or usefulness, it will be gladly received.

A vote of thanks to the President for his address was passed on the proposition of Mr. Clarkson, seconded by Major Rabagliati.

### Discussion on "Scheme for the Eradication of Bovine Tuberculosis," as Proposed by the West of Scotland Division.

Mr. W. Halstead, in opening the discussion, said he would not go through the scheme line by line, but would pick out here and there certain points, in the hope of creating a spirit of discussion. He noticed that they seemed all to have copies of the scheme. They would all agree that, due to sundry causes, such as educational activity, the operation of the Milk Orders, and the endeavours of farmers to go on to grade milk, there had been an under-current of dissatisfaction as to the losses due to tuberculosis and the absence of any scheme of control. It was in response to that feeling that the scheme had been formulated by the West of Scotland

Division. The scheme had been initiated in the profession, and must not be allowed to die of inanition for want of constructive criticism.

Owing to the depression in agriculture, the present time was unfavourable to the launching of such a scheme, but at present it was in bare outline, and it could be put into something like working order. Criticism must be constructive, and if there was any damning to be done, he hoped it would be tempered, and that they would look at the subject in its broadest aspect.

He wanted them to visualise some of the conditions in which cattle were reared, the unhygienic surroundings, and the hopeless food supply. The result was to provide an ideal breeding ground for the tubercle bacillus. To rely upon tuberculin for the eradication of the disease was perfectly hopeless.

In Canada, where a similar scheme was running, it had been found that it brought about better housing conditions for cattle, better sanitary conditions, and had promoted a community of interest. In addition, it provided a safe milk supply, reduced the incidence of tuberculosis in children, and increased herd profits. There was an improvement in animal husbandry which was running in conjunction with tuberculosis eradication, and the two must run together if any scheme was to be a success.

With regard to the problem of initial infection, it had been maintained that the number of reactors in dairy cattle would be about 40 per cent., but with other stock the figure was roughly ten per cent. There were considerable variations in different districts, but the scheme was not a general scheme, but a particular one. The first areas to be dealt with would be those with a small initial infection, and when the scheme had been in operation for some time the initial infection of the worst areas would not be prohibitive.

For the purposes of discussion, let them accept the hypothesis that they had only three types of farms in the country; namely, farms with self-contained herds, where the numbers were kept up by animals bred in the herds; secondly, herds made up of vagrants, chiefly cows, which wandered in and wandered out; and thirdly, what he would call the feeders herd. The self-contained herd was the ideal one on which to commence an eradication scheme; the feeders herd, again, was easily worked. The whole trouble was going to come when they applied the scheme to vagrant herds.

The scheme as put forward was purely a skeleton, and efficiency could only be achieved by having a standardised technique and a special training of the veterinary surgeons who were carrying out the tests. In America the tests could only be carried out by those who had special experience and training, and in Canada the work was done only by whole-time salaried inspectors.

As regarded the administration of the scheme, it was generally agreed that it must be administered by the Ministry of Agriculture, and if the Treasury had to find the money they would insist upon the work being carried out by whole-time salaried officials. If part of the funds were found by the County Councils or local authorities, they would insist upon the work being done by their own officials. To be quite candid, it was difficult to see where the private practitioner would come into a tuberculosis eradication scheme, unless a proviso were made that before application was made for a herd to be officially tested the owner had, at his own expense, to reduce the initial infection to, say, for the purposes of discussion, five per cent.

To visualise the scheme as it would work, let them imagine a self-contained herd, which the owner wished to be accredited. He would make application to the County Council, who would have first to satisfy themselves on certain matters. They would want to know whether the buildings were suitable for the maintenance of health, and capable of being thoroughly disinfected; they would want to know something about the water supply; they would want to know that the land on which the animals were going to be grazed was fenced in such a way that re-infection could not occur from neighbouring stock. The question of fencing was one of the strongest arguments for the adoption of the principle of the accredited area, rather than the accredited herd. Again, the County Council would want to know what sort of tenancy the farmer was on, and the owner would have to sign a declaration that he would fulfil certain conditions, in order to prevent the reintroduction of tuberculosis into his stock. After testing, it would be up to the Ministry to carry out not only the slaughter of the animals but the salvage of them. In the Scottish scheme there was a tendency to stick to what they called the market value of the animal in arriving at the compensation figure. The Canadian scheme simplified that, in that they took a fixed figure for a class of animal and gave, in addition, the salvage.

A point to which he would draw attention was that under the scheme the Ministry did not come in until a private practitioner said the herd was free from infection; then the Ministry, on one test, would accredit the herd. He considered that was much too lenient. The Canadian scheme was much more stringent.

There was no mention of any licensing authority in the scheme, but it seemed essential that there should be a definite licensing authority.

In the scheme was included what was called a "compulsory area," which was not in any other scheme. Probably the West of Scotland Division had in mind the vagrant herds. Personally, he thought the compulsory area should be left entirely out of the scheme, until such time as the other parts of it had advanced.

Another problem that was going to crop up was with regard to imported animals, especially those from Ireland. He suggested that fat animals from Ireland should only be licensed into this country for immediate slaughter or to be sent to special fat-stock markets. As regarded bullocks, they should be admitted on a single test, but animals likely to be used for breeding purposes should be subjected to the same tests as animals going into accredited herds.

Having once got a herd accredited, the question arose as to maintaining it free, and he did think that the Ministry of Agriculture should be relieved of all financial obligations. It should be the duty of the owners to guard a district from any further infection.

He felt that the scheme as put forward was not sufficiently stringent, which was emphasised when it was suggested that the certificates for the production of certified and Grade A milk should be interchangeable. Then the compulsory area should be omitted.

He thought the profession could enlarge upon the scheme and make it thoroughly sound and workable, but they must work along with the agricultural interests, who had as much concern in it as the veterinary profession. Again, the whole of the special milks and the Milk Special Designations Order should be linked up with the scheme.

He hoped the few points he had raised would lead to such a discussion as would enable the Society to send up some resolution to the N.V.M.A.

Mr. Rabagliati emphasised that constructive criticism was required and that rather much cold water had been thrown on the scheme by consideration of petty details. He said the economic loss due to the disease rendered it imperative that something should be done and the scheme, being essentially gradual, would have great educational value. It was impossible to eradicate the disease until the hygienic conditions in which cattle, especially calves, were kept, were much improved.

Mr. Procter advocated control of the tuberculin supply and better conditions for calf rearing, and thought that tuberculosis infection brought by Irish cattle did not amount to much.

Mr. Campbell also spoke of the necessity for controlling tuberculin and pointed out the great amount of damage done by untested " scrub " bulls.

Mr. Dixon, speaking from experience gained in slaughterhouses, said the vast majority of tuberculous cows acquired the disease early in life and almost always by the alimentary tract. Farmers did not realise the extent of the disease nor the ease of its transmission from bovine to bovine and from bovine to pig. He also said that tuberculin should be standardised and its use controlled. They should support the scheme and ask the " National " to take the matter up.

Mr. W. R. McKinna said the public still required educating as to the dangers of bovine tuberculosis and that the profession could not afford to let the subject lapse.

Mr. Pratt spoke in favour of the scheme and said a start should be made with breeding herds and the active education of agriculturists.

The President wound up the discussion by speaking in favour of the scheme and he put the following resolution before the meeting.

*Resolution.*—" That this meeting is in favour of the objects and the basis of the Scheme and is unanimous regarding the following points :—

(1) " The great economic loss and the danger to public health render it imperative that something more be done to deal with the disease.

(2) " Bovine tuberculosis is generally alimentary in origin and infection usually takes place early in life.

(3) " The manufacture of tuberculin should be standardised and its use controlled.

(4) " Much improvement is needed in the methods of rearing young stock.

(5) " In commencing such a scheme breeding herds should have first consideration.

(6) " Tuberculous infection from Ireland is limited."

The President also moved :—" That this Society approves the objects of the West of Scotland scheme, and proposes that a Committee of the N.V.M.A. be set up to discuss and elaborate the plan and to present a comprehensive scheme to the Divisions."

He suggested that the second resolution should be sent to the " National," and a copy to the West of Scotland Division.

The resolutions were agreed to.

Any Other Business.

Mr. Clarkson said that Major Rabagliati was nominated for the Council of the Royal College last year, but they had not joined with the Lancashire Society, as they had done for years, to make him their official candidate, and there was no circular issued. He proposed that Major Rabagliati be their official candidate and that they join with the Lancashire and other Societies in the publication of a circular.

Mr. W. McKinna seconded, and the resolution was carried unanimously.

Votes of thanks to Mr. Halstead and to the President concluded the proceedings.

S. Sharp, *Hon. Secretary.*

## Central Division, N.V.M.A.

" Experiences with Distemper Immunisation " was the attractive title of the paper by Major T. Dalling which occupied the attention of the Fellows of this Division at a meeting held at 10 Red Lion Square, London, on Thursday, February 6th, 1930, and, as was to be expected, there was a very large attendance. The President (Professor James Macqueen) occupied the chair, and there were also present: Capt. A. H. Andrew, Capt. L. S. Balls, Mr. A. J. Beeson, Capt. R. Bennett, Mr. W. Brown, Mr. A. Cornish-Bowden, Capt. R. Bryden, Mr. H. E. Bywater, Major G. W. Dunkin, Capt. H. S. Dunn, Messrs. H. Galloway, W. S. Gordon, Henry Gray, H. W. Griffiths, C. W. Howard, H. D. Jones, Herbert King, H. C. P. King, Major H. Kirk, Dr. P. P. Laidlaw, Mr. E. G. Langford, Capt. W. J. Leyshon, Mr. G. H. Livesey, Capt. G. D. Martin, Mr. J. H. Mason, Professor J. McCunn, Messrs. J. W. McIntosh, A. B. Orr, W. Perryman, J. W. Pritchard, C. Roberts, R. Scott, Dr. A. L. Sheather, Miss K. W. Shedlock, Mr. F. H. Stainton, Capt. R. J. Stow, Mr. R. A. Willett, Mr. D. E. Wilkinson, Professor G. H. Wooldridge, Dr. W. R. Wooldridge, and Capt. J. F. Macdonald (Hon. Secretary).

*Visitors.*—Mr. R. E. C. Bullen, Major A. A. Comerford, Dr. R. A. O'Brien, Major S. R. Douglas, Mr. S. Gourlay, Mr. F. C. Heathcote, Mr. S. F. J. Hodgman, and Major J. J. M. Soutar.

As the minutes of the previous meeting had not been published, the first business was the consideration of *correspondence,* as follows :—

(1) From Mr. H. Bell, Mr. J. H. Poles and Vetr.-Major G. Rees Mogg, apologising for their inability to attend the meeting.

(2) From the Secretary of the National Horse Association, enclosing the second report of the Slippery Roads Committee.

(3) From Dr. P. P. Laidlaw, expressing his great apppreciation of his recent election as an Honorary Fellow of the Society.

Morbid Specimens.

Dr. Leslie Sheather said that he had had three cases which he deemed to be of sufficient interest to bring before them, as they were all conditions with which he had not previously met. Two were cases of streptothrix

infection in the dog. One jar contained only a portion of the material he received, and that was a soft-looking, fungoid sort of growth taken from the chest cavity of a dog. That specimen came from Mr. Payne, of Weybridge. He (Dr. Sheather) found the streptothrix quite easily. The other specimen came from Mr. Tutt, of Winchester, and the growth was taken from the abdominal cavity of a nine-months-old spaniel puppy. The only symptom shown during life was incontinence of urine. Palpation of the abdomen revealed the presence of the tumour-like mass and exploratory laparatomy was performed. It was impossible to say what was the original site of the infection, but it appeared to be probable that it was a mesenteric gland. Sections shewed streptothrix colonies to be present.

The third specimen was from a case which was also very rare, in his experience, and that was a case of verminous pneumonia in the cat. He received that specimen from Mr. Maguire, of Tewkesbury, and at first sight the condition looked like miliary tuberculosis. He had cut the surface of the lung and they could see whitish nodules therein. He embedded some pieces and cut sections and the histology of the lesions shewed that there was a nodular pneumonia. He proceeded to stain sections for various sorts of organisms and failed to find any. He therefore went back to the histological sections and found a worm egg. He recognised that the egg was of the Capillaria type, and Dr. Bayliss, of the Natural History Museum, South Kensington, very kindly examined the sections and identified the egg as being that of *Eucoleus Œrophilus*. A thorough search was made in the bronchi, but the worm itself could not be found.

Mr. R. A. Willett exhibited a specimen of indirect stricture of the pylorus from an eleven-year-old Cocker spaniel. The dog had suffered for over six weeks from intermittent vomiting and nothing else, though after he saw it the vomitation became much more frequent. X-ray photographs were taken; one before a bismuth meal and one after, but both were negative. The afternoon previously, however, he had had occasion to take a photograph, and in that case the bismuth had, in ten minutes, gone halfway along the intestine. In this case, however, the bismuth, after ten minutes, had not gone past the stomach at all. The doctor who did the X-ray work, and he, were inclined to think that the growth which caused stricture was carcinomatous in origin. Mr. Willett exhibited, as a second specimen, a case of infarction of the spleen. The dog was brought to him after having previously been taken from his district to London, to the Free Clinic, where the condition was diagnosed as stoppage.

Capt. W. Leyshon said that he ventured to submit specimens of perforation of the small gut, with resultant peritonitis in the horse. The other day, whilst watching a knackerman eviscerating the carcase of a fairly-well-nourished vanner brought in that morning, his attention was arrested by the presence of an advanced peritonitis, with quantities of what he believed to be *Ascaris megalocephala* and ingesta in the inflammatory exudate.

Upon manipulation of that portion of the bowel, he soon found that the escape of ingesta into the peritoneal cavity arose from a breach in a sac of the mesentery. This sac measured about five by four inches, was filled with bowel contents and communication between it and the gut lumen had been established by the slit which would be seen in the specimen to be near the mesenteric attachment.

The other piece of material was a portion of the diaphragm, which showed the degree and type of inflammatory reaction.

He did not count the ascarides preseat either in the peritoneal sac or the alimentary canal, but infestation appeared to him to be heavy. He did not search in the gut contents for the presence of other parasites or a foreign body.

Regarding the etiology, he could only give the quotation from Greim, in Hutyra and Marek, which stated that the very fine teeth of an *Ascaris megalocephala* could possibly cause slight scratches of the mucous membrane. These latter, according to Flury, were followed by circumscribed inflammation, necrosis and perforation of the intestine, in consequence of secondary bacterial infection as well as through substances secreted by these worms. Francke stated that the perforation occurred almost invariably at the site seen in the specimen. There was nothing to hinder the necrotic process in the intestinal mucous membrane.

*Nominations to Fellowship.*—Major J. J. Soutar, Lt.-Col. J. B. B. Tapley and Lt.-Col. W. H. Walker were nominated as Fellows of the Society.

*Election.*—Mr. J. Stewart was unanimously elected a Fellow.

At this stage the President extended a warm welcome to the visitors, mentioning Major S. R. Douglas, of the Ministry of Health; Dr. P. P. Laidlaw, and Dr. R. A. O'Brien, a Director of Burroughs, Wellcome and Co.

*Paper.*—The President now called upon Major T. Dalling, M.R.C.V.S., to read his paper "Experiences with Distemper Immunisation," and it was heard with the keenest interest and appreciation by the Fellows, who subsequently discussed it at great length. [Both the paper and the report of the discussion are reproduced at the commencement of this issue of the *Record*.—Ed.]

At the conclusion of the discussion, the essayist was accorded a very hearty vote of thanks, on the proposition of Major Kirk, who said that he hoped that Major Dalling would come back again at the end of perhaps six months and give them the benefit of his further researches into the matter of distemper immunisation.

Mr. Perryman proposed a vote of thanks to those who had exhibited *post-mortem* specimens, and this was enthusiastically carried, as was the proposal of Mr. McIntosh that a similar tribute should be paid the President for his conduct of the meeting.

J. F. Macdonald, *Hon. Secretary.*

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In a communication addressed to the Editor of the *Journal of the Institute of Hygiene*, Mr. E. A. Stewart, M.I.H., points out that the Milk and Dairies Order, 1926, has now become operative in all its articles, and he refers particularly to Article 25, which deals with the construction of floors of cowsheds. He suggests that this Article should have been one of the first to come into force. He writes, "In 1926 there were many cowsheds that were mere hovels, some with hardly a pretence of a floor at all. Some had floors through which liquid manure could soak with the greatest of ease. In these sheds milking was carried out amidst filth." Mr. Stewart adds that though progress has been made in the construction of new and better cowsheds, we are still far from being rid of unhygienic ones, some of which cannot be made to comply with the 1926 order unless completely reconstructed.

# From The Veterinarian,

January, 1830.

## On Breeding.

By Mr. Karkeek.

France.

" Comparant ensuite la France avec les contrées voisines pour la richesse en troupeaux, il s'arrête devant la disproportion qu'elle présente sous ce point de vue avec la Grande-Bretagne."—M. le Baron Ch. Dupin.

In France there are horses of all descriptions, but few of them are handsome, or very " fast goers." The Government has taken great trouble of late to improve their breed, by large purchases made in England, Hanover, Germany, Prussia, and Arabia, but their success has not been great. The best of their kind are brought from the Limousin. This was the favourite breed of the late Emperor Napoleon, when crossed with the Arabian horse. Normandy also furnishes some tolerably fine animals, who with their arched necks and Roman countenances are well adapted for carriages.

Comparing France with England, we are surprised at the disproportion which presents itself even in the number, as well as the quality of their breed. From an extract published in the *Journal de Médécine Vétérinaire et comparée*, by Mr. le Baron Ch. Dupin, on the amelioration and multiplication of their principal domestic animals, alluding to horses, he says:—" Que la France est pauvre, comparée aux etats voisins, le tableau suivant le prouve d'une meniére positive."

| Puissances | Population. Humaine. | Equestre. | Nombre de chevaux pour 1,000 hommes. |
|---|---|---|---|
| Hanovre ... ... | 1,300,000 | 250,955 | 193 |
| Suéde ... ... | 2,800,000 | 406,365 | 145 |
| Canton de Vaud ... | 160,000 | 22,498 | 140 |
| Grand-Bretagne ... | 15,000,000 | 1,500,000 | 100 |
| Prusse, six provinces | 8,453,660 | 807,049 | 95 |
| France ... ... | 31,600,000 | 2,500,000 | 79 |

To account for the great difference that exists between France and England, as regards their breed of horses, is impossible; unless we refer it to neglect, and ignorance in their method of breeding; for we know of no particular difference, either in the soil or climate of the two countries; nor does the climate of England approach, in a greater degree, that of the primitive habitation of this animal than that of France. " The old Forrester," an anonymous correspondent in the *Sporting Magazine*, says that, " if the French Government lay out as many louis as it does francs in the attempted improvements in horses, so long as the system at present adopted continues, and the great mass of the people remains the same, no danger of the English being out-done, as breeders of horses, is to be apprehended these next five hundred years."

Such is the present state of " horse-flesh " in " La belle France." That they require a new system in their method of breeding, is very evident; but what remedy to recommend, is beyond our ken.

*"Aux grands maux, les grands remédes."*

And in their attempted improvements in breeding, and ameliorating their principal domestic animals, they should not forget another of their idioms:—

*" Nourriture passe nature."*

*(To be continued.)*

# Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

## Diary of Events.

March 17th—Meetings of the Finance Committee, N.V.M.A., 4 p.m.; Editorial Committee, N.V.M.A., 4.30 p.m., at 10 Gray's Inn Square, W.C.1.

March 20th.—Annual Meeting of the Lancashire Division, N.V.M.A., at Manchester.

March 27th.—Annual Meeting of the Western Counties Division, N.V.M.A., at Exeter.

April 1st.—Annual fees due to R.C.V.S.; Quarterly meetings of Committees, R.C.V.S.

April 2nd.—Registration and other Committees, R.C.V.S.

April 3rd.—Examination, Registration, and Parliamentary Committees, R.C.V.S.

April 4th.—Library and Finance Committees, R.C.V.S.; Quarterly Meeting of Council, R.C.V.S.

June 5th.—R.C.V.S. Annual General Meeting, Dublin.

June 13th.—D.V.S.M. Written Examinations.

June 15th.—D.V.S.M. Oral Examination commences.

July 2nd.—R.C.V.S. Quarterly Meetings.

July 3rd.—R.C.V.S. Quarterly Meetings.

July 4th.—R.C.V.S. Quarterly Meetings.

July 7th.—R.C.V.S. Membership Examination commences.

**AUGUST 3rd to 9th.—11th INTERNATIONAL VETERINARY CONGRESS, CENTRAL HALL, WESTMINSTER.**

### R.C.V.S. Obituary.

Merry, Charles, Merry Vale, off Ayr Road, Irvine, Ayrshire. Graduated Edinburgh, January 15th, 1880. Death reported to R.C.V.S., March 7th, 1930.

. . . . . .

Runciman, Thomas, Senr., Station Road, Ely, Cambs. Graduated Edinburgh, April 19th, 1870; Died March 9th, 1930, age 86 years.

Death of Mr. T. F. O'Donnell, M.R.C.V.S.

" Much regret will be occasioned in Cork by the announcement of the death of Mr. Thomas F. O'Donnell, M.R.C.V.S., which occurred at his residence, Montpellier Terrace, Wellington Road, yesterday," says the *Cork Examiner* of March 1st.

" Mr. O'Donnell was a member of an old Cork family, and was much respected by a large circle of friends and acquaintances. For many years he held the position of export examination officer for the Department of Agriculture at Cork, and discharged his duties with outstanding efficiency. He was prominently associated from time to time with precautionary measures taken on outbreaks and reported outbreaks of foot-and-mouth disease. His capable handling of such situations, and his energetic interest in the protection of Irish trade, as well as his courtesy on all such occasions, were much appreciated by the general public, and particularly by the shipping and cattle trade communities. A man of upright and gentlemanly character,

he made a host of friends during his career, and his death will be mourned by many. To his widow, and to his daughter, Mrs. T. A. Rice, Killaly House, Kilworth, the sympathy of the general public will be sincerely extended."

### Triumph of the Transport Horse.

"The horse is more than holding its own against motor traction," says the *Sunday Express* of March 2nd.

"The number of horses used for transport, as apart from luxury purposes, is increasing rapidly, particularly in urban industrial areas, and the latest estimate prepared for the debates on the Road Transport Bill places the number of transport horses in England and Wales at 1,782,000.

"Precise figures for London are not available, as no census of horses is kept, but there is unanimity of opinion among borough council officials and officers of the horse-breeding societies that there are considerably more horses in the London County Council area than there were in 1913.

"'There has been an enormous increase in all kinds of traffic in London,' a London County Council official said to a *Sunday Express* representative. The tramway horse, the cab horse, and the carriage horse have practically disappeared, but at the docks and the railway termini there are more wagon and van horses than ever before.

"'The 50,000 tramway horses and the 15,000 cab horses displaced by electric cars and motor-omnibuses have been replaced twice over by the increased demand for heavy haulage and delivery-van horses.'"

"'The reaction in favour of the horse,' said Sir Walter Gilbey, first president of the National Horse Society, 'is almost wholly economic. The cost of motor traction is 30 or 40 per cent. higher than horse transport.

"'The life of a high-powered motor-waggon is about three years; that of a horse eight or nine.'"

### The Pig Industry of England and Wales.

The Pig Industry Council has presented its Second Interim Report to the Minister of Agriculture and Fisheries. The Report recounts the general activities of the Pig Council since it was constituted in 1928, and contains a statement of its more important findings in the fields of production and marketing. The Council is of opinion that direct assistance from the State would probably be necessary, in some form, to secure an immediate expansion of the pig industry. In issuing the Report, the Minister cannot be held to endorse any suggestions therein involving direct Government assistance, whether in the form of subsidies or of prohibition or restriction of the importation of articles of food. This would be contrary to the general policy of the Government. The whole Report will, however, receive the most careful consideration.

An expression of the Minister's appreciation of the Council's work has already been conveyed, through the Chairman, to the Council, who have been asked to be good enough to continue with the task of exploring and assessing the economies which the industry can secure of itself, of recommending such action by the industry as will secure these economies, of investigating the economic environment of competing bacon industries abroad, and generally pointing the way to a higher, all-round standard of efficiency at home.—*Ministry of Agriculture.*

### Personal.

*Appointments.*—Lt.-Col. D. O. Turnbull, D.S.O., Deputy Chief Veterinary Officer, Northern Rhodesia, has been appointed to the position of Chief Veterinary Officer, Nyasaland.

Mr. D. C. Fenwick, M.R.C.V.S., has been appointed veterinary inspector for West Glamorgan under the Glamorgan County Council. He will be stationed at Neath.

# Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

## Eradication of Tuberculosis.

To the Editor of the Veterinary Record.

Sir,—I was very pleased to read Mr. Donald Campbell's letter in the *Record* of February 22nd. I side with him rather than with the English divisions, in that I consider that the eradication of tuberculosis in cattle should be started at once.

It is the old question of our inherent modesty as a profession—how the medicals must envy us our power to slaughter offending animals, and how comparatively easy that makes eradication. Have we ever realised what a weapon we have in this, and how enormously it adds to the chances of success? Again, do we realise the enormous relative advantage we have in that we can experiment with the actual species we are dealing with?

Cattle owners cannot afford to stand the financial loss due to this disease, but the mortality amongst children from tuberculosis of bovine origin should settle the matter. It is a question of conserving the wealth of the country, and we should have no hesitation in advocating immediate eradication; expenses to be borne by the cattle owners, or the State, or by both. There should be no difficulty at all in raising a few million pounds when we can guarantee such increased wealth.

If our profession does not take this up, you can depend upon it that some other people will. At present, we are making no use of the knowledge gained by our scientists—and reaping nothing from the enormous expense which their work in the past has entailed.

We have all the knowledge required for eradicating three or four very serious diseases; our discoveries are far ahead of the law and public opinion, but as things are the probability is that these diseases will get worse and worse each year, and so, if eradication eventually is decided upon (and one can hardly believe that it will not be) the job will be colossal, if not impossible.

Our position in the stock world is unique—every country wants our stock; but if we do not put our house in order this state of things cannot continue: countries will demand disease-free as well as well-bred stock. The fact that America has started the campaign against tubercle, is of enormous importance; surely we can follow on, using to our advantage every scrap of the knowledge she has gained.

We are at the cross-roads; if we do not act at once infection with tuberculosis, abortion, and other complaints will become the normal condition of British cattle.

Our insular position is of immense advantage in preventing the re-admission of diseases once they are stamped out.

It is not a comforting thought for a Britisher, but I do not think we can show anything approaching South Africa's record for the last 25 years. The way in which she has completely mastered a great number of stock diseases, and so added to the wealth of the community, proves beyond doubt what is capable of being done and creates a record of which she may well be proud.

It is difficult to understand why British veterinary surgeons are working harder to eliminate rinderpest in Tanganyika, for instance, than they are to eliminate tuberculosis in the British Isles. In the former case the value of the animals in question is about 30s., roughly one-twentieth of the value of home cattle.

The suggestion that the elimination of reacting cattle would create a milk famine does not perturb me unduly; milk is not an essential for healthy adults; there would be more than sufficient for children and invalids. As a matter of fact, the situation would create an unrivalled

opportunity of putting the whole question of dairy products, cowsheds, health of cows, breeding, etc., on a more satisfactory and up-to-date footing.

It appears that we should have to deal with some two million reactors; America in the last 12 years has already dealt with one million reactors, and the State has provided compensation. Are we less capable than Americans? That the disease is eight to ten times more widespread in England, merely shows the greater urgency of tackling the problem, and how can nations better employ themselves than by fighting disease?

Yours faithfully,
J. M. Armfield.

Chipstead, Surrey.

## Contagious Abortion and Tuberculosis.

To the Editor of the Veterinary Record.

Sir,—Apart from the scientific aspects of both these diseases, there is the most important question of facilities for isolation. From my knowledge of cowhouses and cowsheds in various parts of the country, I think that 50 per cent. would be a very liberal estimate of the holdings where decent isolation provision exists. Where cow-houses have been improved (and many of them have been, especially within the last decade) tuberculosis and abortion and many other diseases are scarcer than they used to be.

Yours truly,
G. Mavall, M.R.C.V.S.

Bolton.

## Ketosis Finding in "Grass Disease."

To the Editor of the Veterinary Record.

Sir,—During the last few years I have been doing private research work into the cause of "grass disease" in horses. My findings were negative until three months ago when I commenced studying the disease from the biochemical standpoint, the result being that acetone bodies were found in the only available case. The appropriate treatment for ketosis was administered—glucose. The mare has completely recovered. Two other cases (all three were subacute cases and consecutive) have recovered with the glucose treatment. I know of no record of anyone previously finding a ketosis in "grass disease," and as the "grass disease" season is approaching I take this opportunity of putting it on record. The fact of finding acetone bodies in urine cannot be neglected and further study on these lines must necessarily be of the utmost importance.

I have been able to satisfy myself that ketosis in the milch cow (so-called post-parturient dyspepsia) is due to a combination of blood deficiency and climatic conditions, a heavy diet of albuminoids (such as dairy cake) frequently being directly associated. If the condition is due to a metabolic upset, as suggested, personally I can see means of prevention of the disease and cure of the cases giving time for the condition of ketosis to be treated. I might mention here that the growing grass in the "grass disease" season is as rich as cake in albuminoids.

Yours faithfully,
Oscar Stinson, M.R.C.V.S.

"Charnwood,"
Garth Heads Road, Appleby.
*March 11th*, 1930.

*The Editor acknowledges the receipt of the following:—*

Report of a meeting of the North Wales Division, N.V.M.A., from Mr. H. V. Hughes, Hon. Secretary.

Report of the Annual meeting of the North of England Division, N.V.M.A., from Capt. J. R. Rider, Hon. Secretary.

Report of a meeting of the Uganda Veterinary Association, from Mr. R. C. Fisher.

Communications from Dr. J. T. Edwards (Leatherhead) and Mr. M. K. Garudachar (Edinburgh).

Report of the Agricultural Commission, Colony and Protectorate of Kenya.

# Diseases of Animals Acts, 1894 to 1927.

## SUMMARY OF RETURNS.

| Period. | Anthrax. | | Foot-and-Mouth Disease. | | Glanders (including Farcy).§† | | Parasitic Mange.§ | | Sheep Scab. | Swine Fever. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Outbreaks confirmed. | Animals attacked. | Outbreaks confirmed. | Animals slaughtered as diseased or exposed to infection. | Outbreaks confirmed. | Animals attacked. | Outbreaks reported by the Local Authorities. | Animals attacked. | Outbreaks confirmed. | Outbreaks confirmed. | Swine slaughtered. |
| | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. |
| Period 16 to 28 Feb., 1930... | 11 | 11 | — | — | — | — | 12 | 21 | 23 | 96 | 27 |
| Corresponding period in— | | | | | | | | | | | |
| 1929 ... | 23 | 26 | 2 | 259 | — | — | 16 | 30 | 19 | 43 | 12 |
| 1928 ... | 22 | 24 | 8 | 701 | — | — | 18 | 81 | 25 | 64 | 19 |
| 1927 ... | 20 | 23 | 3 | 388 | — | — | 20 | 34 | 47 | 38 | 12 |
| Total 1 Jan. to 28 Feb., 1930 | 81 | 85 | — | — | — | — | 73 | 117 | 198* | 425 | 147 |
| Corresponding period in— | | | | | | | | | | | |
| 1929 ... | 86 | 99 | 17 | 1,252 | — | — | 80 | 151 | 228 | 202 | 82 |
| 1928 ... | 99 | 109 | 78 | 7,017 | — | — | 97 | 225 | 215 | 277 | 123 |
| 1927 ... | 85 | 117 | 20 | 1,793 | — | — | 105 | 185 | 233 | 187 | 70 |

Note.—The figures for the current year are approximate only.

* The current year's figures on previous returns have included 8 outbreaks which were confirmed in 1929 but which were not notified to the Ministry until 1930. For purposes of comparison these have now been excluded.

† Including outbreaks in recently imported animals. § Excluding outbreaks in Army Horses.